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Declined to Extend by [CG Technology Development, LLC v. Bwin.Party \(USA\), Inc.](#), D.Nev., January 4, 2017
134 S.Ct. 2347
Supreme Court of the United States

ALICE CORPORATION PTY. LTD.,
Petitioner
v.
CLS BANK INTERNATIONAL et al.

No. 13–298.

Argued March 31, 2014.

Decided June 19, 2014.

Synopsis

Background: Banks brought action seeking declaration that patents for mitigating settlement risk in financial transactions by using a computer system as a third-party intermediary were invalid, and patents' assignee filed counterclaim for infringement. The United States District Court for the District of Columbia, [Rosemary M. Collyer, J.](#), 768 F.Supp.2d 221, granted banks' motion for summary judgment, and assignee appealed. On rehearing en banc, the United States Court of Appeals for the Federal Circuit, 717 F.3d 1269, affirmed, and certiorari was granted.

Holdings: The Supreme Court, Justice [Thomas](#), held that:

[1] the abstract idea of an intermediated settlement was not patentable, and

[2] method claims requiring generic computer implementation failed to transform the abstract idea of intermediated settlement into a patent-eligible invention.

Affirmed.

Justice [Sotomayor](#) filed concurring opinion in which Justices [Ginsburg](#) and [Breyer](#) joined.

West Headnotes (15)

[1] **Patents**—Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents

291IIPatentability and Validity

291II(B)Eligible Subject Matter

291k450Exceptions to Eligibility; Ineligible Subject Matter

291k452Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

Laws of nature, natural phenomena, and abstract ideas are not patentable. 35 U.S.C.A. § 101.

[376 Cases that cite this headnote](#)

[2] **Patents**—Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents

291IIPatentability and Validity

291II(B)Eligible Subject Matter

291k450Exceptions to Eligibility; Ineligible Subject Matter

291k452Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

At some level, all inventions embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas; thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. 35 U.S.C.A. § 101.

[291 Cases that cite this headnote](#)

[3] **Patents**—Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents

291IIPatentability and Validity

291II(B)Eligible Subject Matter

291k450 Exceptions to Eligibility; Ineligible Subject Matter

291k452 Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

Applications of abstract concepts to a new and useful end remain eligible for patent protection. 35 U.S.C.A. § 101.

18 Cases that cite this headnote

[4] **Patents** — Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k450 Exceptions to Eligibility; Ineligible Subject Matter
291k452 Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

In applying the patentability exception for laws of nature, natural phenomena, and abstract ideas, courts must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them into a patent-eligible invention; the former would risk disproportionately tying up the use of the underlying ideas, and are therefore ineligible for patent protection, while the latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws. 35 U.S.C.A. § 101.

118 Cases that cite this headnote

[5] **Patents** — Claims and Limitations; Language of Patent

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1315 In general

(Formerly 291k157(1))

Patent claims must be considered as a whole.

6 Cases that cite this headnote

[6] **Patents** — Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k450 Exceptions to Eligibility; Ineligible Subject Matter
291k452 Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

To distinguish patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts, courts first determine whether the claims at issue are directed to one of those patent-ineligible concepts, and if so, then ask what else there is in those claims. 35 U.S.C.A. § 101.

650 Cases that cite this headnote

[7] **Patents** — Business methods; Internet applications

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k458 Computers and Software
291k462 Business methods; Internet applications (Formerly 291k7.14)

Claims in patents for mitigating settlement risk in financial transactions by using a computer system as a third-party intermediary were directed to a patent-ineligible concept; claims were drawn to the abstract idea of intermediated settlement, which was a fundamental economic practice long prevalent in our system of commerce. 35 U.S.C.A. § 101.

96 Cases that cite this headnote

631 Cases that cite this headnote

[8] Patents — Business methods; Internet applications

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k458 Computers and Software
291k462 Business methods; Internet applications (Formerly 291k7.14)

Method claims in patents for mitigating settlement risk in financial transactions through use of a computer system as a third-party intermediary, by requiring generic computer implementation, failed to transform the abstract idea of intermediated settlement into a patent-eligible invention; claims simply instructed a practitioner to implement the abstract idea of intermediated settlement on a generic computer, without purporting to improve the functioning of the computer itself, or effecting an improvement in any other technology or technical field. 35 U.S.C.A. § 101.

211 Cases that cite this headnote

[9] Patents — Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k450 Exceptions to Eligibility; Ineligible Subject Matter
291k452 Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

A patent claim that recites an abstract idea must include additional features to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea; transformation into a patent-eligible application requires more than simply stating the abstract idea while adding the words “apply it.” 35 U.S.C.A. § 101.

[10] Patents — Mathematical formulas and algorithms

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k450 Exceptions to Eligibility; Ineligible Subject Matter
291k454 Mathematical formulas and algorithms (Formerly 291k6)

Simply implementing a mathematical principle on a physical machine, namely a computer, is not a patentable application of that principle. 35 U.S.C.A. § 101.

[11] Patents — Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k450 Exceptions to Eligibility; Ineligible Subject Matter
291k452 Laws of nature, natural phenomena, and abstract ideas; fundamental principles (Formerly 291k5)

The prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of the idea to a particular technological environment. 35 U.S.C.A. § 101.

34 Cases that cite this headnote

[12] Patents — Classes of Invention or Discovery; Statutory Subject Matter

291 Patents
291III Patentability and Validity
291II(B) Eligible Subject Matter
291k442 Classes of Invention or Discovery; Statutory Subject Matter

291k443In general
(Formerly 291k7.11)

Mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. 35 U.S.C.A. § 101.

826 Cases that cite this headnote

[13] **Patents** → Use or operation of machine or apparatus as affecting process; “machine or transformation” test

291Patents
291IIIPatentability and Validity
291II(B)Eligible Subject Matter
291k455Use or operation of machine or apparatus as affecting process; “machine or transformation” test
(Formerly 291k7.11)

If a patent’s recitation of a computer amounts to a mere instruction to implement an abstract idea on a computer, that addition cannot impart patent eligibility. 35 U.S.C.A. § 101.

120 Cases that cite this headnote

[14] **Patents** → Business methods; Internet applications

291Patents
291IIIPatentability and Validity
291II(B)Eligible Subject Matter
291k458Computers and Software
291k462Business methods; Internet applications
(Formerly 291k7.14)

Claims to a computer system and a computer-readable medium in patents for mitigating settlement risk in financial transactions through use of a computer system as a third-party intermediary were patent ineligible; system claims recited a handful of generic computer components configured to implement the unpatentable abstract idea of an intermediated settlement. 35 U.S.C.A. § 101.

20 Cases that cite this headnote

[15] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 5,970,479, US Patent 6,912,510, US Patent 7,149,720, US Patent 7,725,375. Invalid.

2 Cases that cite this headnote

****2349 Syllabus***

Petitioner Alice Corporation is the assignee of several patents that disclose a scheme for mitigating “settlement risk,” *i.e.*, the risk that only one party to an agreed-upon financial exchange will satisfy its obligation. In particular, the patent claims are designed to facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary. The patents in suit claim (1) a method for exchanging financial obligations, (2) a computer system configured to carry out the method for exchanging obligations, and (3) a computer-readable medium containing program code for performing the method of exchanging obligations.

Respondents (together, CLS Bank), who operate a global network that facilitates currency transactions, filed suit against petitioner, arguing that the patent claims at issue are invalid, unenforceable, or not infringed. Petitioner counterclaimed, alleging infringement. After *Bilski v. Kappos*, 561 U.S. 593, 130 S.Ct. 3218, 177 L.Ed.2d 792, was decided, the District Court held that all of the claims were ineligible for patent protection under 35 U.S.C. § 101 because they are directed to an abstract idea. The en banc Federal Circuit affirmed.

Held : Because the claims are drawn to a patent-ineligible abstract idea, they ****2350** are not patent eligible under § 101. Pp. 2354 – 2360.

(a) The Court has long held that § 101, which defines the subject matter eligible for patent protection, contains an implicit exception for “ ‘[l]aws of nature, natural phenomena, and abstract ideas.’ ” *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. —, —, 133 S.Ct. 2107, 2116, 186 L.Ed.2d 124. In

applying the § 101 exception, this Court must distinguish patents that claim the “ ‘buildin[g] block[s]’ ” of human ingenuity, which are ineligible for patent protection, from those that integrate the building blocks into something more, see *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. —, —, 132 S.Ct. 1289, 1303, 182 L.Ed.2d 321, thereby “transform[ing]” them into a patent-eligible invention, *id.*, at —, 132 S.Ct., at 1294. Pp. 2354 – 2355.

(b) Using this framework, the Court must first determine whether the claims at issue are directed to a patent-ineligible concept. 566 U.S., at —, 132 S.Ct., at —. If so, the Court then asks whether the claim’s elements, considered both individually and “as an ordered combination,” “transform the nature of the claim” into a patent-eligible application. *Id.*, at —, 132 S.Ct., at 1297. Pp. 2355 – 2360.

(1) The claims at issue are directed to a patent-ineligible concept: the abstract idea of intermediated settlement. Under “the longstanding rule that ‘[a]n idea of itself is not patentable,’ ” *Gottschalk v. Benson*, 409 U.S. 63, 67, 93 S.Ct. 253, 34 L.Ed.2d 273, this Court has found ineligible patent claims involving an algorithm for converting binary-coded decimal numerals into pure binary form, *id.*, at 71–72, 93 S.Ct. 253; a mathematical formula for computing “alarm limits” in a catalytic conversion process, *Parker v. Flook*, 437 U.S. 584, 594–595, 98 S.Ct. 2522, 57 L.Ed.2d 451; and, most recently, a method for hedging against the financial risk of price fluctuations, *Bilski*, 561 U.S., at 599, 130 S.Ct. 3218. It follows from these cases, and *Bilski* in particular, that the claims at issue are directed to an abstract idea. On their face, they are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk. Like the risk hedging in *Bilski*, the concept of intermediated settlement is “ ‘a fundamental economic practice long prevalent in our system of commerce,’ ” *ibid.*, and the use of a third-party intermediary (or “clearing house”) is a building block of the modern economy. Thus, intermediated settlement, like hedging, is an “abstract idea” beyond § 101’s scope. Pp. 2355 – 2357.

(2) Turning to the second step of *Mayo*’s framework: The method claims, which merely require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention. Pp. 2357 – 2360.

(i) “Simply appending conventional steps, specified at a high level of generality,” to a method already “well known in the art” is not “enough” to supply the “ ‘inventive concept’ ” needed to make this transformation. *Mayo, supra*, at —, —, —, 132 S.Ct., at 1300,

1297, 1294. The introduction of a computer into the claims does not alter the analysis. Neither stating an abstract idea “while adding the words ‘apply it,’ ” *Mayo, supra*, at —, 132 S.Ct., at 1294, nor limiting the use of an abstract idea “ ‘to a particular technological environment,’ ” *Bilski, supra*, at 610–611, 130 S.Ct. 3218, is enough for patent eligibility. Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Wholly generic computer implementation is not generally the sort of “additional **2351 featur[e]” that provides any “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.” *Mayo, supra*, at —, 132 S.Ct., at 1297. Pp. 2357 – 2359.

(ii) Here, the representative method claim does no more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. Taking the claim elements separately, the function performed by the computer at each step—creating and maintaining “shadow” accounts, obtaining data, adjusting account balances, and issuing automated instructions—is “[p]urely ‘conventional.’ ” *Mayo*, 566 U.S., at —, 132 S.Ct., at 1298. Considered “as an ordered combination,” these computer components “ad[d] nothing ... that is not already present when the steps are considered separately.” *Id.*, at —, 132 S.Ct., at 1298. Viewed as a whole, these method claims simply recite the concept of intermediated settlement as performed by a generic computer. They do not, for example, purport to improve the functioning of the computer itself or effect an improvement in any other technology or technical field. An instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer is not “enough” to transform the abstract idea into a patent-eligible invention. *Id.*, at —, 132 S.Ct., at 1297. Pp. 2359 – 2360.

(3) Because petitioner’s system and media claims add nothing of substance to the underlying abstract idea, they too are patent ineligible under § 101. Petitioner conceded below that its media claims rise or fall with its method claims. And the system claims are no different in substance from the method claims. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long “warn[ed] ... against” interpreting § 101 “in ways that make patent eligibility ‘depend simply on the draftsman’s art.’ ” *Mayo, supra*, at —, 132 S.Ct., at 1294. Holding that the system claims are patent eligible would have exactly that result. P. 2360.

717 F.3d 1269, affirmed.

THOMAS, J., delivered the opinion for a unanimous Court. SOTOMAYOR, J., filed a concurring opinion, in which GINSBURG and BREYER, JJ., joined.

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Opinion

Justice THOMAS delivered the opinion of the Court.

*212 The patents at issue in this case disclose a computer-implemented scheme for mitigating “settlement risk” (*i.e.*, the risk that **2352 only one party to a financial transaction will pay what it owes) by using a third-party intermediary. The question presented is whether these claims are patent eligible under 35 U.S.C. § 101, or are instead drawn to a patent-ineligible abstract idea. We hold that the claims at issue are drawn to the abstract idea of intermediated settlement, and that merely requiring generic computer implementation fails to transform that abstract idea into a patent-eligible invention. We therefore affirm the judgment of the United States Court of Appeals for the Federal Circuit.

A

Petitioner Alice Corporation is the assignee of several patents that disclose schemes to manage certain forms of financial risk.¹ According to the specification largely shared by the patents, the invention “enabl[es] the management of risk relating to specified, yet unknown, future events.” App. 248. The specification further explains that the “invention relates to methods and apparatus, including electrical computers *213 and data processing systems applied to financial matters and risk management.” *Id.*, at 243.

The claims at issue relate to a computerized scheme for mitigating “settlement risk”—*i.e.*, the risk that only one party to an agreed-upon financial exchange will satisfy its obligation. In particular, the claims are designed to facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary. *Id.*, at 383–384.² The intermediary creates “shadow” credit and debit records (*i.e.*, account ledgers) that mirror the balances in the parties’ real-world accounts at “exchange institutions” (*e.g.*, banks). The intermediary updates the shadow records in real time as transactions are entered, allowing “only those transactions for which the parties’ updated shadow records indicate sufficient resources to satisfy their mutual obligations.” 717 F.3d 1269, 1285 (C.A.Fed.2013) *214 (Lourie, J., concurring). At the end of the day, the intermediary instructs the relevant financial institutions to carry out the “permitted” transactions in accordance with the updated shadow records, *ibid.*, thus mitigating the risk that only one party will perform the agreed-upon exchange.

**2353 In sum, the patents in suit claim (1) the foregoing method for exchanging obligations (the method claims), (2) a computer system configured to carry out the method for exchanging obligations (the system claims), and (3) a computer-readable medium containing program code for performing the method of exchanging obligations (the media claims). All of the claims are implemented using a computer; the system and media claims expressly recite a computer, and the parties have stipulated that the method claims require a computer as well.

I

B

Respondents CLS Bank International and CLS Services Ltd. (together, CLS Bank) operate a global network that facilitates currency transactions. In 2007, CLS Bank filed suit against petitioner, seeking a declaratory judgment that the claims at issue are invalid, unenforceable, or not infringed. Petitioner counterclaimed, alleging infringement. Following this Court’s decision in *Bilski v. Kappos*, 561 U.S. 593, 130 S.Ct. 3218, 177 L.Ed.2d 792 (2010), the parties filed cross-motions for summary judgment on whether the asserted claims are eligible for patent protection under 35 U.S.C. § 101. The District Court held that all of the claims are patent ineligible because they are directed to the abstract idea of “employing a neutral intermediary to facilitate simultaneous exchange of obligations in order to minimize risk.” 768 F.Supp.2d 221, 252 (D.C.2011).

A divided panel of the United States Court of Appeals for the Federal Circuit reversed, holding that it was not “manifestly evident” that petitioner’s claims are directed to an abstract idea. 685 F.3d 1341, 1352, 1356 (2012). The Federal Circuit granted rehearing en banc, vacated the panel opinion, and affirmed the judgment of the District Court in a one-paragraph *215 *per curiam* opinion. 717 F.3d, at 1273. Seven of the ten participating judges agreed that petitioner’s method and media claims are patent ineligible. See *id.*, at 1274 (Lourie, J., concurring); *id.*, at 1312–1313 (Rader, C.J., concurring in part and dissenting in part). With respect to petitioner’s system claims, the en banc Federal Circuit affirmed the District Court’s judgment by an equally divided vote. *Id.*, at 1273.

Writing for a five-member plurality, Judge Lourie concluded that all of the claims at issue are patent ineligible. In the plurality’s view, under this Court’s decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. —, 132 S.Ct. 1289, 182 L.Ed.2d 321 (2012), a court must first “identif[y] the abstract idea represented in the claim,” and then determine “whether the balance of the claim adds ‘significantly more.’ ” 717 F.3d, at 1286. The plurality concluded that petitioner’s claims “draw on the abstract idea of reducing settlement risk by effecting trades through a third-party intermediary,” and that the use of a computer to maintain, adjust, and reconcile shadow accounts added nothing of substance to that abstract idea. *Ibid.*

Chief Judge Rader concurred in part and dissented in part. In a part of the opinion joined only by Judge Moore, Chief Judge Rader agreed with the plurality that petitioner’s method and media claims are drawn to an abstract idea. *Id.*, at 1312–1313. In a part of the opinion

joined by Judges Linn, Moore, and O’Malley, Chief Judge Rader would have held that the system claims are patent eligible because they involve computer “hardware” that is “specifically programmed to solve a complex problem.” *Id.*, at 1307. Judge Moore wrote a separate opinion dissenting in part, arguing that the system claims are patent eligible. *Id.*, at 1313–1314. Judge *2354 Newman filed an opinion concurring in part and dissenting in part, arguing that all of petitioner’s claims are patent eligible. *Id.*, at 1327. Judges Linn and O’Malley filed a separate dissenting opinion reaching that same conclusion. *Ibid.*

*216 We granted certiorari, 571 U.S. —, 134 S.Ct. 734, 187 L.Ed.2d 590 (2013), and now affirm.

II

[1] Section 101 of the Patent Act defines the subject matter eligible for patent protection. It provides:

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101.

“We have long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. —, —, 133 S.Ct. 2107, 2116, 186 L.Ed.2d 124 (2013) (internal quotation marks and brackets omitted). We have interpreted § 101 and its predecessors in light of this exception for more than 150 years. *Bilski, supra*, at 601–602, 130 S.Ct. 3218; see also *O’Reilly v. Morse*, 15 How. 62, 112–120, 14 L.Ed. 601 (1854); *Le Roy v. Tatham*, 14 How. 156, 174–175, 14 L.Ed. 367 (1853).

We have described the concern that drives this exclusionary principle as one of pre-emption. See, e.g., *Bilski, supra*, at 611–612, 130 S.Ct. 3218 (upholding the patent “would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea”). Laws of nature, natural phenomena, and abstract ideas are “ ‘ “the basic tools of scientific and technological work.” ’ ” *Myriad, supra*, at —, 133 S.Ct., at 2116. “[M]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it,” thereby thwarting

the primary object of the patent laws. *Mayo, supra*, at —, 132 S.Ct., at 1923; see U.S. Const., Art. I, § 8, cl. 8 (Congress “shall have Power ... To promote the Progress of Science and useful Arts”). We have “repeatedly emphasized this ... concern that patent law not inhibit further discovery by improperly tying up the future use of” these building blocks of human ingenuity. *Mayo, supra*, at —, 132 S.Ct., at 1301 (citing *Morse, supra*, at 113).

[2] [3] *217 At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. *Mayo*, 566 U.S., at —, 132 S.Ct., at 1293–1294. At some level, “all inventions ... embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Id.*, at —, 132 S.Ct., at 1293. Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. See *Diamond v. Diehr*, 450 U.S. 175, 187, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981). “[A]pplication[s]” of such concepts “‘to a new and useful end,’” we have said, remain eligible for patent protection. *Gottschalk v. Benson*, 409 U.S. 63, 67, 93 S.Ct. 253, 34 L.Ed.2d 273 (1972).

[4] Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the “‘buildin[g] block[s]’” of human ingenuity and those that integrate the building blocks into something more, *Mayo*, 566 U.S., at —, 132 S.Ct., at 1303, thereby “transform[ing]” them into a patent-eligible invention, *id.*, at —, 132 S.Ct., at 1294. The former “would risk disproportionately tying up the use of the underlying” ideas, **2355 *id.*, at —, 132 S.Ct., at 1294, and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.

III

[5] [6] In *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. —, 132 S.Ct. 1289, 182 L.Ed.2d 321 (2012), we set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. *Id.*, at —, 132 S.Ct., at 1296–1297. If so, we then ask, “[w]hat else is there in the claims before us?” *Id.*, at —, 132 S.Ct., at 1297. To answer that question, we consider the elements of each

claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. *Id.*, at —, 132 S.Ct., at 1298, 1297. We have described step two of this analysis as a search for an “‘inventive concept’”—*i.e.*, an element or combination of elements *218 that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.” *Id.*, at —, 132 S.Ct., at 1294.³

A

[7] We must first determine whether the claims at issue are directed to a patent-ineligible concept. We conclude that they are: These claims are drawn to the abstract idea of intermediated settlement.

The “abstract ideas” category embodies “the longstanding rule that ‘[a]n idea of itself is not patentable.’” *Benson, supra*, at 67, 93 S.Ct. 253 (quoting *Rubber-Tip Pencil Co. v. Howard*, 20 Wall. 498, 507, 22 L.Ed. 410 (1874)); see also *Le Roy, supra*, at 175 (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right”). In *Benson*, for example, this Court rejected as ineligible patent claims involving an algorithm for converting binary-coded decimal numerals into pure binary form, holding that the claimed patent was “in practical effect ... a patent on the algorithm itself.” 409 U.S., at 71–72, 93 S.Ct. 253. And in *Parker v. Flook*, 437 U.S. 584, 594–595, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978), we held that a mathematical formula for computing “alarm limits” in a catalytic conversion process was also a patent-ineligible abstract idea.

We most recently addressed the category of abstract ideas in *Bilski v. Kappos*, 561 U.S. 593, 130 S.Ct. 3218, 177 L.Ed.2d 792 (2010). The claims at issue in *Bilski* described a method for hedging against the financial risk of price fluctuations. Claim 1 recited a series of steps for hedging risk, including: (1) initiating a series of financial transactions between providers and consumers of a commodity; (2) *219 identifying market participants that have a counterrisk for the same commodity; and (3) initiating a series of transactions between those market participants and the commodity provider to balance the risk **2356 position of the first series of consumer transactions. *Id.*, at 599, 130 S.Ct. 3218. Claim 4 “pu[t] the concept articulated in claim 1 into a simple

mathematical formula.” *Ibid.* The remaining claims were drawn to examples of hedging in commodities and energy markets.

“[A]ll members of the Court agree[d]” that the patent at issue in *Bilski* claimed an “abstract idea.” *Id.*, at 609, 130 S.Ct. 3218; see also *id.*, at 619, 130 S.Ct. 3218 (Stevens, J., concurring in judgment). Specifically, the claims described “the basic concept of hedging, or protecting against risk.” *Id.*, at 611, 130 S.Ct. 3218. The Court explained that “[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.” *Ibid.* “The concept of hedging” as recited by the claims in suit was therefore a patent-ineligible “abstract idea, just like the algorithms at issue in *Benson* and *Flook*.” *Ibid.*

It follows from our prior cases, and *Bilski* in particular, that the claims at issue here are directed to an abstract idea. Petitioner’s claims involve a method of exchanging financial obligations between two parties using a third-party intermediary to mitigate settlement risk. The intermediary creates and updates “shadow” records to reflect the value of each party’s actual accounts held at “exchange institutions,” thereby permitting only those transactions for which the parties have sufficient resources. At the end of each day, the intermediary issues irrevocable instructions to the exchange institutions to carry out the permitted transactions.

On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk. Like the risk hedging in *Bilski*, the concept of intermediated settlement is “ ‘a fundamental economic practice long prevalent in our system of commerce.’ ” *Ibid.*; see, *e.g.*, Emery, Speculation on the *220 Stock and Produce Exchanges of the United States, in 7 Studies in History, Economics and Public Law 283, 346–356 (1896) (discussing the use of a “clearing-house” as an intermediary to reduce settlement risk). The use of a third-party intermediary (or “clearing house”) is also a building block of the modern economy. See, *e.g.*, Yadav, *The Problematic Case of Clearinghouses in Complex Markets*, 101 *Geo. L.J.* 387, 406–412 (2013); J. Hull, *Risk Management and Financial Institutions* 103–104 (3d ed. 2012). Thus, intermediated settlement, like hedging, is an “abstract idea” beyond the scope of § 101.

Petitioner acknowledges that its claims describe intermediated settlement, see Brief for Petitioner 4, but rejects the conclusion that its claims recite an “abstract idea.” Drawing on the presence of mathematical formulas in some of our abstract-ideas precedents, petitioner

contends that the abstract-ideas category is confined to “preexisting, fundamental truth[s]” that “ ‘exis[t] in principle apart from any human action.’ ” *Id.*, at 23, 26 (quoting *Mayo*, 566 U.S., at —, 132 S.Ct., at 1297).

Bilski belies petitioner’s assertion. The concept of risk hedging we identified as an abstract idea in that case cannot be described as a “preexisting, fundamental truth.” The patent in *Bilski* simply involved a “series of steps instructing how to hedge risk.” 561 U.S., at 599, 130 S.Ct. 3218. Although hedging is a longstanding commercial practice, *id.*, at 599, 130 S.Ct. 3218, it is a method of organizing human activity, not a “truth” about the natural world “ ‘that has always existed,’ ” Brief for Petitioner 22 (quoting *Flook*, *supra*, at 593, n. 15, 98 S.Ct. 2522). One of the claims in *Bilski* reduced hedging to a **2357 mathematical formula, but the Court did not assign any special significance to that fact, much less the sort of talismanic significance petitioner claims. Instead, the Court grounded its conclusion that all of the claims at issue were abstract ideas in the understanding that risk hedging was a “ ‘fundamental economic practice.’ ” 561 U.S., at 611, 130 S.Ct. 3218.

*221 In any event, we need not labor to delimit the precise contours of the “abstract ideas” category in this case. It is enough to recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here. Both are squarely within the realm of “abstract ideas” as we have used that term.

B

¹⁸¹ Because the claims at issue are directed to the abstract idea of intermediated settlement, we turn to the second step in *Mayo*’s framework. We conclude that the method claims, which merely require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention.

1

¹⁹¹ At *Mayo* step two, we must examine the elements of the claim to determine whether it contains an “ ‘inventive concept’ ” sufficient to “transform” the claimed abstract idea into a patent-eligible application. 566 U.S., at —,

—, 132 S.Ct., at 1294, 1298. A claim that recites an abstract idea must include “additional features” to ensure “that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].” *Id.*, at —, 132 S.Ct., at 1297. *Mayo* made clear that transformation into a patent-eligible application requires “more than simply stat[ing] the [abstract idea] while adding the words ‘apply it.’” *Id.*, at —, 132 S.Ct., at 1294.

Mayo itself is instructive. The patents at issue in *Mayo* claimed a method for measuring metabolites in the bloodstream in order to calibrate the appropriate dosage of thiopurine drugs in the treatment of autoimmune diseases. *Id.*, at —, 132 S.Ct., at 1294–1296. The respondent in that case contended that the claimed method was a patent-eligible application of natural laws that describe the relationship between the concentration of certain metabolites and the likelihood that the drug dosage will be harmful or ineffective. But methods for determining metabolite levels were already “well known in the *222 art,” and the process at issue amounted to “nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients.” *Id.*, at —, 132 S.Ct., at 1298. “Simply appending conventional steps, specified at a high level of generality,” was not “enough” to supply an “inventive concept.” *Id.*, at —, —, —, 132 S.Ct., at 1300, 1297, 1294.

^[10] The introduction of a computer into the claims does not alter the analysis at *Mayo* step two. In *Benson*, for example, we considered a patent that claimed an algorithm implemented on “a general-purpose digital computer.” 409 U.S., at 64, 93 S.Ct. 253. Because the algorithm was an abstract idea, see *supra*, at 2355, the claim had to supply a “‘new and useful’” application of the idea in order to be patent eligible. 409 U.S., at 67, 93 S.Ct. 253. But the computer implementation did not supply the necessary inventive concept; the process could be “carried out in existing computers long in use.” *Ibid.* We accordingly “held that simply implementing a mathematical principle on a physical machine, namely a computer, [i]s not a patentable application of that principle.” **2358 *Mayo, supra*, at —, 132 S.Ct., at 1301 (citing *Benson, supra*, at 64, 93 S.Ct. 253).

^[11] *Flook* is to the same effect. There, we examined a computerized method for using a mathematical formula to adjust alarm limits for certain operating conditions (e.g., temperature and pressure) that could signal inefficiency or danger in a catalytic conversion process. 437 U.S., at 585–586, 98 S.Ct. 2522. Once again, the formula itself was an abstract idea, see *supra*, at 2355, and the computer implementation was purely conventional. 437 U.S., at

594, 98 S.Ct. 2522 (noting that the “use of computers for ‘automatic monitoring-alarming’” was “well known”). In holding that the process was patent ineligible, we rejected the argument that “implement[ing] a principle in some specific fashion” will “automatically fal[l] within the patentable subject matter of § 101.” *Id.*, at 593, 98 S.Ct. 2522. Thus, “*Flook* stands for the proposition that the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment.” *223 *Bilski*, 561 U.S., at 610–611, 130 S.Ct. 3218 (internal quotation marks omitted).

In *Diehr*, 450 U.S. 175, 101 S.Ct. 1048, 67 L.Ed.2d 155, by contrast, we held that a computer-implemented process for curing rubber was patent eligible, but not because it involved a computer. The claim employed a “well-known” mathematical equation, but it used that equation in a process designed to solve a technological problem in “conventional industry practice.” *Id.*, at 177, 178, 101 S.Ct. 1048. The invention in *Diehr* used a “thermocouple” to record constant temperature measurements inside the rubber mold—something “the industry ha[d] not been able to obtain.” *Id.*, at 178, and n. 3, 101 S.Ct. 1048. The temperature measurements were then fed into a computer, which repeatedly recalculated the remaining cure time by using the mathematical equation. *Id.*, at 178–179, 101 S.Ct. 1048. These additional steps, we recently explained, “transformed the process into an inventive application of the formula.” *Mayo, supra*, at —, 132 S.Ct., at 1299. In other words, the claims in *Diehr* were patent eligible because they improved an existing technological process, not because they were implemented on a computer.

^[12] ^[13] These cases demonstrate that the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. *Mayo, supra*, at —, 132 S.Ct., at 1294. Nor is limiting the use of an abstract idea “‘to a particular technological environment.’” *Bilski, supra*, at 610–611, 130 S.Ct. 3218. Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to “implemen [t]” an abstract idea “on ... a computer,” *Mayo, supra*, at —, 132 S.Ct., at 1301, that addition cannot impart patent eligibility. This conclusion accords with the pre-emption concern that undergirds our § 101 jurisprudence. Given the ubiquity of computers, see 717 F.3d, at 1286 (Lourie, J., concurring), wholly generic computer implementation *224 is not generally the sort of “additional featur[e]” that

provides any “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.” *Mayo*, 566 U.S., at —, 132 S.Ct., at 1297.

The fact that a computer “necessarily exist[s] in the physical, rather than purely conceptual, realm,” Brief for Petitioner 39, is beside the point. There is no dispute **2359 that a computer is a tangible system (in § 101 terms, a “machine”), or that many computer-implemented claims are formally addressed to patent-eligible subject matter. But if that were the end of the § 101 inquiry, an applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept. Such a result would make the determination of patent eligibility “depend simply on the draftsman’s art,” *Flook*, *supra*, at 593, 98 S.Ct. 2522, thereby eviscerating the rule that “[l]aws of nature, natural phenomena, and abstract ideas are not patentable,” *Myriad*, 569 U.S., at —, 133 S.Ct., at 2116.

2

The representative method claim in this case recites the following steps: (1) “creating” shadow records for each counterparty to a transaction; (2) “obtaining” start-of-day balances based on the parties’ real-world accounts at exchange institutions; (3) “adjusting” the shadow records as transactions are entered, allowing only those transactions for which the parties have sufficient resources; and (4) issuing irrevocable end-of-day instructions to the exchange institutions to carry out the permitted transactions. See n. 2, *supra*. Petitioner principally contends that the claims are patent eligible because these steps “require a substantial and meaningful role for the computer.” Brief for Petitioner 48. As stipulated, the claimed method requires the use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions; in other words, “[t]he computer is itself the intermediary.” *Ibid.* (emphasis deleted).

*225 In light of the foregoing, see *supra*, at 2357 – 2359, the relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is “[p]urely conventional.” *Mayo*, *supra*, at —, 132 S.Ct., at 1298 (internal quotation marks omitted). Using a

computer to create and maintain “shadow” accounts amounts to electronic recordkeeping—one of the most basic functions of a computer. See, e.g., *Benson*, 409 U.S., at 65, 93 S.Ct. 253 (noting that a computer “operates ... upon both new and previously stored data”). The same is true with respect to the use of a computer to obtain data, adjust account balances, and issue automated instructions; all of these computer functions are “well-understood, routine, conventional activit[ies]” previously known to the industry. *Mayo*, 566 U.S., at —, 132 S.Ct., at 1294. In short, each step does no more than require a generic computer to perform generic computer functions.

Considered “as an ordered combination,” the computer components of petitioner’s method “ad[d] nothing ... that is not already present when the steps are considered separately.” *Id.*, at —, 132 S.Ct., at 1298. Viewed as a whole, petitioner’s method claims simply recite the concept of intermediated settlement as performed by a generic computer. See 717 F.3d, at 1286 (Lourie, J., concurring) (noting that the representative method claim “lacks any express language to define the computer’s participation”). The method claims do not, for example, purport to improve the functioning of the computer itself. See *ibid.* (“There is no specific or limiting recitation of ... improved computer technology ...”); Brief for United States as *Amicus Curiae* 28–30. Nor do they effect an improvement in any other technology or technical field. See, e.g., **2360 *Diehr*, 450 U.S., at 177–178, 101 S.Ct. 1048. Instead, the claims at issue amount to “nothing significantly more” than *226 an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer. *Mayo*, 566 U.S., at —, 132 S.Ct., at 1298. Under our precedents, that is not “enough” to transform an abstract idea into a patent-eligible invention. *Id.*, at —, 132 S.Ct., at 1297.

C

¹⁴¹ Petitioner’s claims to a computer system and a computer-readable medium fail for substantially the same reasons. Petitioner conceded below that its media claims rise or fall with its method claims. En Banc Response Brief for Defendant–Appellant in No. 11–1301 (CA Fed.) p. 50, n. 3. As to its system claims, petitioner emphasizes that those claims recite “specific hardware” configured to perform “specific computerized functions.” Brief for Petitioner 53. But what petitioner characterizes as specific hardware—a “data processing system” with a

“communications controller” and “data storage unit,” for example, see App. 954, 958, 1257—is purely functional and generic. Nearly every computer will include a “communications controller” and “data storage unit” capable of performing the basic calculation, storage, and transmission functions required by the method claims. See 717 F.3d, at 1290 (Lourie, J., concurring). As a result, none of the hardware recited by the system claims “offers a meaningful limitation beyond generally linking ‘the use of the [method] to a particular technological environment,’ that is, implementation via computers.” *Id.*, at 1291 (quoting *Bilski*, 561 U.S., at 610–611, 130 S.Ct. 3218).

Put another way, the system claims are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long “warn[ed] ... against” interpreting § 101 “in ways that make patent eligibility ‘depend simply on the draftsman’s art.’ ” *Mayo*, *supra*, at —, 132 S.Ct., at 1294 (quoting *Flook*, 437 U.S., at 593, 98 S.Ct. 2522); see *id.*, at 590, 98 S.Ct. 2522 (“The concept of patentable subject *227 matter under § 101 is not ‘like a nose of wax which may be turned and twisted in any direction ...’ ”). Holding that the system claims are patent eligible would have exactly that result.

Because petitioner’s system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101.

* * *

Footnotes

* The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.

1 The patents at issue are United States Patent Nos. 5,970,479 (the ‘479 patent), 6,912,510, 7,149,720, and 7,725,375.

2 The parties agree that claim 33 of the ‘479 patent is representative of the method claims. Claim 33 recites: “A method of exchanging obligations as between parties, each party holding a credit record and a debit record with an exchange institution, the credit records and debit records for exchange of predetermined obligations, the method comprising the steps of: “(a) creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions; “(b) obtaining from each exchange institution a start-of-day balance for each shadow credit record and shadow debit record; “(c) for every transaction resulting in an exchange obligation, the supervisory institution adjusting each respective party’s shadow credit record or shadow debit record, allowing only these transactions that do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time, each said adjustment taking place in chronological order, and “(d) at the end-of-day, the supervisory institution instructing on[e] of the exchange institutions to exchange credits or debits to the credit record and debit record of the respective parties in accordance with the adjustments of the said permitted transactions, the credits and debits being irrevocable, time invariant obligations placed on the exchange institutions.” App. 383–384.

3 Because the approach we made explicit in *Mayo* considers all claim elements, both individually and in combination, it is consistent

For the foregoing reasons, the judgment of the Court of Appeals for the Federal Circuit is affirmed.

It is so ordered.


Justice SOTOMAYOR, with whom Justice GINSBURG and Justice BREYER join, concurring.

I adhere to the view that any “claim that merely describes a method of doing business does not qualify as a ‘process’ under § 101.” *Bilski v. Kappos*, 561 U.S. 593, 614, 130 S.Ct. 3218, 177 L.Ed.2d 792 (2010) (Stevens, J., concurring in judgment); see also *In re Bilski*, 545 F.3d 943, 972 (C.A.Fed.2008) (Dyk, J., concurring) (“There is no suggestion in any of th[e] early [English] consideration of process patents that processes for organizing human activity were or ever had been patentable”). As in *Bilski*, however, I further believe that the method claims at issue are drawn to an abstract idea. Cf. **2361 561 U.S., at 619, 130 S.Ct. 3218 (opinion of Stevens, J.). I therefore join the opinion of the Court.

All Citations

573 U.S. 208, 134 S.Ct. 2347, 189 L.Ed.2d 296, 82 USLW 4508, 110 U.S.P.Q.2d 1976, 14 Cal. Daily Op. Serv. 6713, 2014 Daily Journal D.A.R. 7838, 24 Fla. L. Weekly Fed. S 870

with the general rule that patent claims “must be considered as a whole.” *Diamond v. Diehr*, 450 U.S. 175, 188, 101 S.Ct. 1048, 67 L.Ed.2d 155 (1981); see *Parker v. Flook*, 437 U.S. 584, 594, 98 S.Ct. 2522, 57 L.Ed.2d 451 (1978) (“Our approach ... is ... not at all inconsistent with the view that a patent claim must be considered as a whole”).

 KeyCite Yellow Flag - Negative Treatment
Disagreement Recognized by [Rosati v. Rosati](#), N.D.Ill., August 18, 2021

126 S.Ct. 1837
Supreme Court of the United States

EBAY INC. et al., Petitioners,
v.
MERCEXCHANGE, L.L.C.

No. 05–130.
|
Argued March 29, 2006.
|
Decided May 15, 2006.

Synopsis

Background: Owner of patent for method of conducting on-line sales sued auction website operators for infringement. The United States District Court for the Eastern District of Virginia, Jerome B. Friedman, J., [275 F.Supp.2d 695](#), entered judgment on jury's finding that patent was valid and had been infringed, and awarded damages, but denied permanent injunctive relief sought by owner. The United States Court of Appeals for the Federal Circuit, [401 F.3d 1323](#), reversed in part, finding that District Court had abused its discretion by denying permanent injunction. Certiorari was granted.

Holdings: The United States Supreme Court, Justice Thomas, held that:

[1] generally applicable four-factor test for permanent injunctive relief applies to disputes arising under Patent Act, and

[2] in successful patent infringement action, patent holder's willingness to license its patents and lack of commercial activity in practicing patents do not preclude permanent injunction.

Vacated and remanded.

The Chief Justice filed a concurring opinion joined by Justices [Scalia](#) and [Ginsburg](#).

Justice [Kennedy](#) filed a concurring opinion joined by Justices [Stevens](#), [Souter](#), and [Breyer](#).

West Headnotes (4)

[1] **Injunction**  Grounds in general; multiple factors

212Injunction

212Injunctions in General; Permanent Injunctions in General

212I(B)Factors Considered in General

212k1032Grounds in general; multiple factors (Formerly 212k9)

Plaintiff seeking permanent injunction must demonstrate that: (1) it has suffered irreparable injury; (2) remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) considering balance of hardships between plaintiff and defendant, remedy in equity is warranted; and (4) public interest would not be disserved by permanent injunction.

[3299 Cases that cite this headnote](#)

[2] **Federal Courts**  Injunction

170BFederal Courts

170BXVIICourts of Appeals

170BXVII(K)Scope and Extent of Review

170BXVII(K)2Standard of Review

170Bk3612Remedial Matters

170Bk3616Injunction

170Bk3616(1)In general

(Formerly 170Bk814.1)

District court's decision to grant or deny permanent injunctive relief is act of equitable discretion reviewable for abuse of discretion.

[967 Cases that cite this headnote](#)

[3] **Patents**  Grounds in general; multiple factors

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k1862 Injunctions
291 k1864 Grounds in general; multiple factors
(Formerly 291 k317)

General equitable principles governing grant of permanent injunction, and consequent four-factor test for such relief, i.e. irreparable injury, inadequacy of remedies at law, balance of hardships favoring party seeking injunction, and public interest, apply in context of disputes arising under Patent Act; fact that Act confers upon patent holder right to exclude others does not render permanent injunction appropriate any time infringement and validity have been adjudged. 35 U.S.C.A. §§ 154(a)(1), 261, 283.

3087 Cases that cite this headnote

[4] **Patents** → Balance of hardships; irreparable injury

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k1862 Injunctions
291 k1866 Balance of hardships; irreparable injury
(Formerly 291 k317)

In successful patent infringement action, patent holder's willingness to license its patents, and lack of commercial activity in practicing patents, do not, by themselves, establish that holder would not suffer irreparable harm if permanent injunction against infringing party did not issue; thus, those facts by themselves do not preclude injunctive relief. 35 U.S.C.A. § 1 et seq.

407 Cases that cite this headnote

****1837 *388 Syllabus***

Petitioners operate popular Internet Web sites that allow private sellers to list ****1838** goods they wish to sell. Respondent sought to license its business method patent to petitioners, but no agreement was reached. In

respondent's subsequent patent infringement suit, a jury found that its patent was valid, that petitioners had infringed the patent, and that damages were appropriate. However, the District Court denied respondent's motion for permanent injunctive relief. In reversing, the Federal Circuit applied its "general rule that courts will issue permanent injunctions against patent infringement absent exceptional circumstances." 401 F.3d 1323, 1339.

Held: The traditional four-factor test applied by courts of equity when considering whether to award permanent injunctive relief to a prevailing plaintiff applies to disputes arising under the Patent Act. That test requires a plaintiff to demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law are inadequate to compensate for that injury; (3) that considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction. The decision to grant or deny such relief is an act of equitable discretion by the district court, reviewable on appeal for abuse of discretion. These principles apply with equal force to Patent Act disputes. "[A] major departure from the long tradition of equity practice should not be lightly implied." *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 320, 102 S.Ct. 1798, 72 L.Ed.2d 91. Nothing in the Act indicates such a departure. Pp. 1839 – 1841.

401 F.3d 1323, vacated and remanded.

THOMAS, J., delivered the opinion for a unanimous Court. ROBERTS, C.J., filed a concurring opinion, in which SCALIA and GINSBURG, JJ., joined, *post*, p. 1841. KENNEDY, J., filed a concurring opinion, in which STEVENS, SOUTER, and BREYER, JJ., joined, *post*, p. 1842.

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Opinion

Justice THOMAS delivered the opinion of the Court.

*390 Ordinarily, a federal court considering whether to award permanent injunctive relief to a prevailing plaintiff applies the four-factor test historically employed by courts of equity. Petitioners eBay Inc. and Half.com, Inc., argue that this traditional test applies to disputes arising under **1839 the Patent Act. We agree and, accordingly, vacate the judgment of the Court of Appeals.

I

Petitioner eBay operates a popular Internet Web site that allows private sellers to list goods they wish to sell, either through an auction or at a fixed price. Petitioner Half.com, now a wholly owned subsidiary of eBay, operates a similar Web site. Respondent MercExchange, L.L.C., holds a number of patents, including a business method patent for an electronic market designed to facilitate the sale of goods between private individuals by establishing a central authority to promote trust among participants. See U.S. Patent No. 5,845,265. MercExchange sought to license its patent to eBay and Half.com, as it had previously done with other companies, but the parties failed to reach an agreement. MercExchange subsequently filed a patent infringement suit against eBay and Half.com in the United States District Court for the Eastern District of Virginia. A jury found *391 that MercExchange’s patent was valid, that eBay and Half.com had infringed that patent, and that an award of damages was appropriate.¹

Following the jury verdict, the District Court denied MercExchange’s motion for permanent injunctive relief. 275 F.Supp.2d 695 (2003). The Court of Appeals for the Federal Circuit reversed, applying its “general rule that courts will issue permanent injunctions against patent infringement absent exceptional circumstances.” 401 F.3d 1323, 1339 (2005). We granted certiorari to determine the appropriateness of this general rule. 546 U.S. 1029, 126 S.Ct. 733, 163 L.Ed.2d 567 (2005).

II

^[1] ^[2] According to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction. See, e.g., *Weinberger v. Romero—Barcelo*, 456 U.S. 305, 311–313, 102 S.Ct. 1798, 72 L.Ed.2d 91 (1982); *Amoco Production Co. v. Gambell*, 480 U.S. 531, 542, 107 S.Ct. 1396, 94 L.Ed.2d 542 (1987). The decision to grant or deny permanent injunctive relief is an act of equitable discretion by the district court, reviewable on appeal for abuse of discretion. See, e.g., *Romero—Barcelo*, 456 U.S., at 320, 102 S.Ct. 1798.

^[3] These familiar principles apply with equal force to disputes arising under the Patent Act. As this Court has long recognized, “a major departure from the long tradition of equity practice should not be lightly implied.” *Ibid.*; see also *Amoco, supra*, at 542, 107 S.Ct. 1396. Nothing in the Patent Act indicates *392 that Congress intended such a departure. To the contrary, the Patent Act expressly provides that injunctions “may” issue “in accordance with the principles of equity.” 35 U.S.C. § 283.²

**1840 To be sure, the Patent Act also declares that “patents shall have the attributes of personal property,” § 261, including “the right to exclude others from making, using, offering for sale, or selling the invention,” § 154(a)(1). According to the Court of Appeals, this statutory right to exclude alone justifies its general rule in favor of permanent injunctive relief. 401 F.3d, at 1338. But the creation of a right is distinct from the provision of remedies for violations of that right. Indeed, the Patent Act itself indicates that patents shall have the attributes of personal property “[s]ubject to the provisions of this title,” 35 U.S.C. § 261, including, presumably, the provision that injunctive relief “may” issue only “in accordance with the principles of equity,” § 283.

This approach is consistent with our treatment of injunctions under the Copyright Act. Like a patent owner,

a copyright holder possesses “the right to exclude others from using his property.” *Fox Film Corp. v. Doyal*, 286 U.S. 123, 127, 52 S.Ct. 546, 76 L.Ed. 1010 (1932); see also *id.*, at 127–128, 52 S.Ct. 546 (“A copyright, like a patent, is at once the equivalent given by the public for benefits bestowed by the genius and meditations and skill of individuals and the incentive to further efforts for the same important objects” (internal quotation marks omitted)). Like the Patent Act, the Copyright Act provides that courts “may” grant injunctive relief “on such terms as it may deem reasonable to prevent or restrain infringement of a copyright.” 17 U.S.C. § 502(a). And as in our decision today, this Court has consistently rejected invitations to replace traditional equitable considerations with a rule that an injunction automatically *393 follows a determination that a copyright has been infringed. See, e.g., *New York Times Co. v. Tasini*, 533 U.S. 483, 505, 121 S.Ct. 2381, 150 L.Ed.2d 500 (2001) (citing *Campbell v. Acuff–Rose Music, Inc.*, 510 U.S. 569, 578, n. 10, 114 S.Ct. 1164, 127 L.Ed.2d 500 (1994)); *Dun v. Lumbermen’s Credit Assn.*, 209 U.S. 20, 23–24, 28 S.Ct. 335, 52 L.Ed. 663 (1908).

¹⁴¹ Neither the District Court nor the Court of Appeals below fairly applied these traditional equitable principles in deciding respondent’s motion for a permanent injunction. Although the District Court recited the traditional four-factor test, 275 F.Supp.2d, at 711, it appeared to adopt certain expansive principles suggesting that injunctive relief could not issue in a broad swath of cases. Most notably, it concluded that a “plaintiff’s willingness to license its patents” and “its lack of commercial activity in practicing the patents” would be sufficient to establish that the patent holder would not suffer irreparable harm if an injunction did not issue. *Id.*, at 712. But traditional equitable principles do not permit such broad classifications. For example, some patent holders, such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves. Such patent holders may be able to satisfy the traditional four-factor test, and we see no basis for categorically denying them the opportunity to do so. To the extent that the District Court adopted such a categorical rule, then, its analysis cannot be squared with the principles of equity adopted by Congress. The court’s categorical rule is also in tension with *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 422–430, 28 S.Ct. 748, 52 L.Ed. 1122 (1908), which rejected the contention that a court of equity has no jurisdiction to grant injunctive relief to a **1841 patent holder who has unreasonably declined to use the patent.

In reversing the District Court, the Court of Appeals departed in the opposite direction from the four-factor test. The court articulated a “general rule,” unique to patent disputes, “that a permanent injunction will issue once infringement *394 and validity have been adjudged.” 401 F.3d, at 1338. The court further indicated that injunctions should be denied only in the “unusual” case, under “exceptional circumstances” and “ ‘in rare instances ... to protect the public interest.’ ” *Id.*, at 1338–1339. Just as the District Court erred in its categorical denial of injunctive relief, the Court of Appeals erred in its categorical grant of such relief. Cf. *Roche Products, Inc. v. Bolar Pharmaceutical Co.*, 733 F.2d 858, 865 (C.A.Fed.1984) (recognizing the “considerable discretion” district courts have “in determining whether the facts of a situation require it to issue an injunction”).

Because we conclude that neither court below correctly applied the traditional four-factor framework that governs the award of injunctive relief, we vacate the judgment of the Court of Appeals, so that the District Court may apply that framework in the first instance. In doing so, we take no position on whether permanent injunctive relief should or should not issue in this particular case, or indeed in any number of other disputes arising under the Patent Act. We hold only that the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts, and that such discretion must be exercised consistent with traditional principles of equity, in patent disputes no less than in other cases governed by such standards.

Accordingly, we vacate the judgment of the Court of Appeals and remand the case for further proceedings consistent with this opinion.

It is so ordered.

Chief Justice ROBERTS, with whom Justice SCALIA and Justice GINSBURG join, concurring.

I agree with the Court’s holding that “the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts, and that such discretion must be exercised consistent with traditional principles of equity, in patent disputes no less than in other cases *395 governed by such standards,” *ante*, at 1841, and I join the opinion of the Court. That opinion rightly rests on the proposition that “a major departure from the long tradition of equity practice should not be lightly implied.” *Weinberger v. Romero–Barcelo*, 456

U.S. 305, 320, 102 S.Ct. 1798, 72 L.Ed.2d 91 (1982); see *ante*, at 1839.

From at least the early 19th century, courts have granted injunctive relief upon a finding of infringement in the vast majority of patent cases. This “long tradition of equity practice” is not surprising, given the difficulty of protecting a right to *exclude* through monetary remedies that allow an infringer to *use* an invention against the patentee’s wishes—a difficulty that often implicates the first two factors of the traditional four-factor test. This historical practice, as the Court holds, does not *entitle* a patentee to a permanent injunction or justify a *general rule* that such injunctions should issue. The Federal Circuit itself so recognized in *Roche Products, Inc. v. Bolar Pharmaceutical Co.*, 733 F.2d 858, 865–867 (1984). At the same time, there is a difference between exercising equitable discretion pursuant to the established four-factor test and writing on an entirely clean slate. “Discretion is not whim, and limiting discretion according to legal standards helps promote the basic ****1842** principle of justice that like cases should be decided alike.” *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 139, 126 S.Ct. 704, 710, 163 L.Ed.2d 547 (2005). When it comes to discerning and applying those standards, in this area as others, “a page of history is worth a volume of logic.” *New York Trust Co. v. Eisner*, 256 U.S. 345, 349, 41 S.Ct. 506, 65 L.Ed. 963 (1921) (opinion for the Court by Holmes, J.).

Justice **KENNEDY**, with whom Justice **STEVENS**, Justice **SOUTER**, and Justice **BREYER** join, concurring.

The Court is correct, in my view, to hold that courts should apply the well-established, four-factor test—without resort to categorical rules—in deciding whether to grant injunctive relief in patent cases. THE CHIEF JUSTICE is also correct ***396** that history may be instructive in applying this test. *Ante*, at 1841 – 1842 (concurring opinion). The traditional practice of issuing injunctions against patent infringers, however, does not seem to rest on “the difficulty of protecting a right to *exclude* through monetary remedies that allow an infringer to *use* an invention against the patentee’s wishes.” *Ante*, at 1841 (ROBERTS, C.J., concurring). Both the terms of the Patent Act and the traditional view of injunctive relief accept that the existence of a right to exclude does not dictate the remedy for a violation of that right. *Ante*, at 1839 – 1840 (opinion of the Court). To the extent earlier cases establish a pattern of granting an injunction against patent infringers almost as a matter of

course, this pattern simply illustrates the result of the four-factor test in the contexts then prevalent. The lesson of the historical practice, therefore, is most helpful and instructive when the circumstances of a case bear substantial parallels to litigation the courts have confronted before.

In cases now arising trial courts should bear in mind that in many instances the nature of the patent being enforced and the economic function of the patent holder present considerations quite unlike earlier cases. An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees. See FTC, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, ch. 3, pp. 38–39 (Oct.2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf> (as visited May 11, 2006, and available in Clerk of Court’s case file). For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent. See *ibid*. When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement ***397** and an injunction may not serve the public interest. In addition injunctive relief may have different consequences for the burgeoning number of patents over business methods, which were not of much economic and legal significance in earlier times. The potential vagueness and suspect validity of some of these patents may affect the calculus under the four-factor test.

The equitable discretion over injunctions, granted by the Patent Act, is well suited to allow courts to adapt to the rapid technological and legal developments in the patent system. For these reasons it should be recognized that district courts must determine whether past practice fits the circumstances of the cases before ****1843** them. With these observations, I join the opinion of the Court.

All Citations

547 U.S. 388, 126 S.Ct. 1837, 164 L.Ed.2d 641, 74 USLW 4248, 78 U.S.P.Q.2d 1577, 06 Cal. Daily Op. Serv. 3935, 2006 Daily Journal D.A.R. 5756, 19 Fla. L. Weekly Fed. S 197, 27 A.L.R. Fed. 2d 685

Footnotes


eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006)

126 S.Ct. 1837, 164 L.Ed.2d 641, 74 USLW 4248, 78 U.S.P.Q.2d 1577...

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.
- 1 EBay and Half.com continue to challenge the validity of MercExchange’s patent in proceedings pending before the United States Patent and Trademark Office.
- 2 [Section 283](#) provides that “[t]he several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable.”

End of Document

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Declined to Extend by [Presidio Components, Inc. v. American Technical Ceramics Corp.](#), S.D.Cal., August 17, 2016

773 F.3d 1201
United States Court of Appeals,
Federal Circuit.

ERICSSON, INC., Telefonaktiebolaget
LM Ericsson, and Wi-Fi One, LLC,
Plaintiffs–Appellees,

v.

D–LINK SYSTEMS, INC., Netgear, Inc.,
Acer, Inc., Acer America Corporation,
and Gateway, Inc.,
Defendants–Appellants,

and

Dell, Inc., Defendant–Appellant,
and

Toshiba America Information Systems,
Inc. and Toshiba Corporation,
Defendants–Appellants,

and

Intel Corporation, Intervenor–Appellant,
and

Belkin International, Inc., Defendant.

Nos. 2013–1625, 2013–1631, 2013–1632,
2013–1633.

|
Dec. 4, 2014.

Synopsis

Background: Patentee commenced action against competitors, alleging infringement of patents generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet. The United States District Court for the Eastern District of Texas, [Leonard Davis, J., 2013 WL 4046225](#), denied competitor’s post-judgment motions after a jury verdict in the patentee’s favor and upheld the jury’s infringement and validity findings and refused to grant a new trial. Competitors appealed.

Holdings: The Court of Appeals, [O’Malley](#), Circuit Judge, held that:

[1] substantial evidence supported jury’s findings that accused product infringed limitation over “service type identifier which identifies a type of payload information”;

[2] term, “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” meant responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types;

[3] accused devices met “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” step;

[4] competitor induced indirect infringement of method claim;

[5] accused products did not infringe claim requiring that “a transmitter command [] a receiver to a) receive at least one packet and b) release any expectation of receiving outstanding packets”;

[6] jury was entitled to credit patentee’s expert testimony over competitor’s expert testimony to conclude that prior art publication did not anticipate patent;

[7] competitor waived argument that the district court prejudicially erred by allowing patentee’s counsel to reference total cost of laptop when discussing requested royalty rate; and

[8] on issue of first impression, district court could not include all 15 *Georgia–Pacific* factors in its damages instruction without considering their relevance to record created at trial and whether they were misleading.

Affirmed in part, reversed in part, vacated in part, and remanded.

[Taranto](#), Circuit Judge, filed opinion dissenting-in-part.

West Headnotes (49)

[1] **Courts**  Particular questions or subject matter

106Courts

106II Establishment, Organization, and Procedure
106II(G) Rules of Decision
106k88 Previous Decisions as Controlling or as Precedents
106k96 Decisions of United States Courts as Authority in Other United States Courts
106k96(7) Particular questions or subject matter

In a patent case, a trial court's decision on a motion for judgment as a matter of law (JMOL) is reviewed under the law of the regional circuit.

[2 Cases that cite this headnote](#)

[2] **Patents** → Construction and Operation of Patents

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(12) Construction and Operation of Patents
291k1970(13) In general
(Formerly 291k324.5)

Patent claim construction is an issue of law that is reviewed de novo.

[3 Cases that cite this headnote](#)

[3] **Patents** → Novelty; anticipation
Patents → Infringement or noninfringement

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(2) Patentability and Validity
291k1970(5) Novelty; anticipation
(Formerly 291k324.55(4))
291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(15) Infringement or noninfringement
(Formerly 291k324.55(5))

Patent infringement and anticipation are issues of fact reviewed for substantial evidence.

[2 Cases that cite this headnote](#)

[4] **Patents** → Particular fields of invention

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)3 Evidence
291k1825 Weight and Sufficiency
291k1828 Particular Matters
291k1828(2) Particular fields of invention
(Formerly 291k312(6))

Substantial evidence supported jury's findings that accused product infringed limitation over "service type identifier which identifies a type of payload information" in patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet; although evidence showed that traffic identifier (TID) field, relied upon by patentee to meet service type identifier limitation, did not always identify its payload type, at least one video calling program used the invention, accused device was reasonably capable of arranging information for transmission that identified type of payload information without significant alterations, and compliant chip producer instructed developers to use TID field in infringing manner.

[5 Cases that cite this headnote](#)

[5] **Patents** → In general; comparison with patent claims

291 Patents
291VII Patent Infringement
291VII(A) In General
291k1554 Substantial Identity of Subject Matter
291k1555 In general; comparison with patent claims
(Formerly 291k226.6)

To prove literal patent infringement, the patentee must show that the accused device

contains each and every limitation of the asserted claims.

[16 Cases that cite this headnote](#)

[6] **Patents** Business methods; Internet applications

291 Patents
291V Construction and Operation of Patents
291V(C) Particular Fields of Invention
291k1391 Computers and Software
291k1395 Business methods; Internet applications (Formerly 291k101(2))

Phrase “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field,” in patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet, meant responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types.

[7] **Patents** State of the art

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1341 State of the art (Formerly 291k161)

Generally, patent claim terms should be given their ordinary and customary meaning to a person having ordinary skill in the art at the time of the effective date of the patent application.

[5 Cases that cite this headnote](#)

[8] **Patents** Multiple sources for construction
Patents Rejection and Amendment of Claims; Prosecution History

Patents Extrinsic Evidence

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1313 Multiple sources for construction (Formerly 291k167(1), 291k165(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1335 Accompanying Documents and Proceedings in Patent and Trademark Office
291k1338 Rejection and Amendment of Claims; Prosecution History
291k1338(1) In general (Formerly 291k168(2.1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1345 In general (Formerly 291k159)

To ascertain the scope and meaning of the asserted patent claims, a court looks to the words of the claims themselves, the specification, the prosecution history, and any relevant extrinsic evidence; this inquiry typically begins and ends with the intrinsic evidence.

[8 Cases that cite this headnote](#)

[9] **Patents** Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general (Formerly 291k167(1))

When ascertaining the scope and meaning of the asserted patent claims, the specification is the single best guide to the meaning of the claim terms, and it is usually dispositive.

[9 Cases that cite this headnote](#)

[10] Patents — Specification as limiting or enlarging claims in general

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1329 Specification as limiting or enlarging claims in general
(Formerly 291k167(1.1))

Although patent claims must be read in light of the specification, it is important that a court avoids importing limitations from the specification into the claims.

[4 Cases that cite this headnote](#)

[11] Patents — Business methods; Internet applications

291 Patents
291VII Patent Infringement
291VII(B) Particular Fields of Invention
291k1651 Computers and Software
291k1655 Business methods; Internet applications
(Formerly 291k235(2))

Accused devices met “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” step in asserted claims of patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet, as required for literal infringement; although accused devices used only one type of feedback response, multiple different feedback response types did not have to be actually used.

[12] Patents — Identity in general

291 Patents
291VII Patent Infringement
291VII(A) In General
291k1562 Patents for Processes and Methods
291k1564 Identity in general

(Formerly 291k229)

A method patent claim is directly infringed when someone practices every step of the patented method.

[17 Cases that cite this headnote](#)

[13] Patents — Inducement to infringe

291 Patents
291VII Patent Infringement
291VII(A) In General
291k1597 Indirect Infringement
291k1600 Inducement to infringe
(Formerly 291k259(1))

In order to prove induced patent infringement, the patentee must show that the alleged infringer performs, or induces another party to perform, every single step in the method.

[33 Cases that cite this headnote](#)

[14] Patents — Inducement to infringe

291 Patents
291VII Patent Infringement
291VII(A) In General
291k1597 Indirect Infringement
291k1600 Inducement to infringe
(Formerly 291k259(1))

Inducement requires that the alleged patent infringer knowingly induced infringement and possessed specific intent to encourage another’s infringement.

[13 Cases that cite this headnote](#)

[15] Patents — Radio and telecommunications equipment

291 Patents
291VII Patent Infringement
291VII(B) Particular Fields of Invention

291k1658Electricity and Electronics
291k1661Radio and telecommunications equipment
(Formerly 291k259(1))

Competitor induced indirect infringement of method claim in patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet, where competitor knew about the patent, it knew that the patent potentially was essential to wireless chip standard to which it intentionally complied, and all steps of method claim were performed on end product that was controlled by third-party.

17 Cases that cite this headnote

[16] Patents → Business methods; Internet applications

291Patents
291VIIPatent Infringement
291VII(B)Particular Fields of Invention
291k1651Computers and Software
291k1655Business methods; Internet applications
(Formerly 291k235(2))

Accused products did not infringe claim requiring that “a transmitter command [] a receiver to a) receive at least one packet and b) release any expectation of receiving outstanding packets,” in patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet, where receiver automatically handled out-of-order packets.

[17] Patents → Evidence

291Patents
291IIIPatentability and Validity
291II(C)Novelty; Anticipation
291II(C)4Prior Description in Printed Publication
291k603Evidence
(Formerly 291k62(1))

Jury was entitled to credit patentee’s expert testimony over competitor’s expert testimony to conclude that prior art publication did not

anticipate patent generally relating to Wi-Fi technology employed by electronic devices to wirelessly access the Internet.

1 Cases that cite this headnote

[18] Patents → Single reference disclosing every element or limitation of claim

291Patents
291IIIPatentability and Validity
291II(C)Novelty; Anticipation
291II(C)1In General
291k483Prior Art and Relation of Claimed Invention There to
291k489Number of Prior Art References; Combinations
291k489(2)Single reference disclosing every element or limitation of claim
(Formerly 291k72(1))

A claim is anticipated only if each and every limitation is found either expressly or inherently in a single prior art reference.

4 Cases that cite this headnote

[19] Patents → Degree of proof

291Patents
291IIIPatentability and Validity
291II(C)Novelty; Anticipation
291II(C)3Evidence and Determination
291k577Degree of proof
(Formerly 291k62(3))

Because patents are presumed valid, anticipation must be proven by clear and convincing evidence.

4 Cases that cite this headnote

[20] Courts → Particular questions or subject matter

106Courts
106IIEstablishment, Organization, and Procedure

106II(G)Rules of Decision
106k88Previous Decisions as Controlling or as Precedents
106k96Decisions of United States Courts as Authority in Other United States Courts
106k96(7)Particular questions or subject matter

In a patent case, decisions on motions for a new trial and the admission of expert testimony are reviewed under the law of the regional circuit.

3 Cases that cite this headnote

[21] **Federal Courts** → New Trial, Rehearing, or Reconsideration

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3576Procedural Matters
170Bk3606New Trial, Rehearing, or Reconsideration
170Bk3606(1)In general

The Fifth Circuit reviews the denial of a new trial motion for abuse of discretion, reversing only if there is an absolute absence of evidence to support the jury's verdict.

[22] **Federal Courts** → Expert evidence and witnesses

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3576Procedural Matters
170Bk3600Expert evidence and witnesses

The Fifth Circuit reviews the trial court's admission or exclusion of expert testimony for an abuse of discretion.

2 Cases that cite this headnote

[23] **Patents** → De novo review in general

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review
291k1965Scope, Standard, and Extent of Review
291k1967De novo review in general (Formerly 291k324.5)

The legal sufficiency of a jury instruction on an issue of patent law is reviewed de novo.

1 Cases that cite this headnote

[24] **Federal Courts** → Instructions

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)4Harmless and Reversible Error
170Bk3686Particular Errors as Harmless or Prejudicial
170Bk3703Instructions
170Bk3703(1)In general

A jury verdict will be set aside only if the jury instructions were legally erroneous and the errors had prejudicial effect.

2 Cases that cite this headnote

[25] **Patents** → Elements, measure, and amount in general

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1900Profits
291k1903Elements, measure, and amount in general (Formerly 291k318(4.1))

In a patent infringement case, apportionment is required even for non-royalty forms of damages: a jury must ultimately apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features using reliable and tangible evidence. 35

U.S.C.A. § 284.

38 Cases that cite this headnote

- [26] **Patents** Reasonable royalty; hypothetical negotiation
Patents Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1900 Profits
291k1904 Reasonable royalty; hypothetical negotiation
(Formerly 291k318(4.1))
291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

In a patent infringement case, an economist can measure the value of patented and unpatented features for a reasonable royalty award by careful selection of the royalty base to reflect the value added by the patented feature, where that differentiation is possible, by adjustment of the royalty rate so as to discount the value of a product's non-patented features, or by a combination thereof; the essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product. 35 U.S.C.A. § 284.

120 Cases that cite this headnote

- [27] **Patents** Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief

291k1900 Profits
291k1904 Reasonable royalty; hypothetical negotiation
(Formerly 291k318(4.1))

When addressing a reasonable royalty award in a patent infringement case, where a multi-component product is at issue and the patented feature is not the item that imbues the combination of the other features with value, care must be taken to avoid misleading the jury by placing undue emphasis on the value of the entire product; reliance on the entire market value might mislead the jury, who may be less equipped to understand the extent to which the royalty rate would need to do the work in such instances. 35 U.S.C.A. § 284.

33 Cases that cite this headnote

- [28] **Patents** Elements, measure, and amount in general

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1900 Profits
291k1903 Elements, measure, and amount in general
(Formerly 291k318(4.1))

Where the entire value of a machine as a marketable article is properly and legally attributable to the patented feature, the damages owed to the patentee for infringement may be calculated by reference to that value; however, where it is not, a court must insist on a more realistic starting point for the royalty calculations by juries which often is the smallest salable unit and, at times, even less. 35 U.S.C.A. § 284.

12 Cases that cite this headnote

- [29] **Patents** Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement

291VII(C)Actions
291VII(C)5Relief
291k1910Damages
291k1914Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

When addressing a reasonable royalty award in a patent infringement case, the fact that a license is not perfectly analogous generally goes to the weight of the evidence, not its admissibility; in each case, district courts must assess the extent to which the proffered testimony, evidence, and arguments would skew unfairly the jury's ability to apportion the damages to account only for the value attributable to the infringing features. 35 U.S.C.A. § 284.

39 Cases that cite this headnote

[30] **Federal Courts** → Exclusion of Evidence

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)4Harmless and Reversible Error
170Bk3686Particular Errors as Harmless or Prejudicial
170Bk3701Evidence
170Bk3701(8)Exclusion of Evidence
170Bk3701(9)In general

In a patent infringement case, where expert testimony explains the need to the jury when considering a reasonable royalty award to discount reliance on a given license to account only for the value attributed to the licensed technology, the mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis, and the district court exercises its discretion not to exclude such evidence, is not reversible error. 35 U.S.C.A. § 284; Fed.Rules Evid.Rule 403, 28 U.S.C.A.

5 Cases that cite this headnote

[31] **Patents** → Instructions

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)4Trial, Hearing, and Determination
291k1849Instructions
(Formerly 291k314(1))

In a patent infringement case, when licenses based on the value of a multi-component product are admitted as evidence of a reasonable royalty award, or even referenced in expert testimony, a court should give a cautionary instruction regarding the limited purposes for which such testimony is proffered if the accused infringer requests the instruction; the court also should ensure that the instructions fully explain the need to apportion the ultimate royalty award to the incremental value of the patented feature from the overall product. 35 U.S.C.A. § 284.

18 Cases that cite this headnote

[32] **Patents** → Presentation and Reservation in Lower Court of Grounds of Review

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review
291k1956Presentation and Reservation in Lower Court of Grounds of Review
291k1957In general
(Formerly 291k324.1)

Competitor waived argument that the district court prejudicially erred by allowing patentee's counsel to reference total cost of laptop when discussing requested royalty rate; although competitor had continuing objection to patentee's expert's reference to prior licenses, competitor did not object to counsel's reference to market value of laptop at trial, competitor referred to value of its own end products on cross-examination, and it did not raise issue in its post-trial motions. 35 U.S.C.A. § 284.

[33] **Patents** → Instructions

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 4 Trial, Hearing, and Determination
291 k1849 Instructions
(Formerly 291 k314(1))

District court could not include all 15 *Georgia-Pacific* factors in its damages instruction in patent infringement case without considering their relevance to record created at trial and whether they were misleading; court had to consider facts of record when instructing jury on reasonable royalty and had to avoid rote reference to any particular damages formula. 35 U.S.C.A. § 284.

6 Cases that cite this headnote

[34] Patents → Instructions

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 4 Trial, Hearing, and Determination
291 k1849 Instructions
(Formerly 291 k314(1))

A trial court must carefully consider the evidence presented when crafting an appropriate jury instruction for a reasonable royalty award for patent infringement. 35 U.S.C.A. § 284.

4 Cases that cite this headnote

[35] Patents → Instructions

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 4 Trial, Hearing, and Determination
291 k1849 Instructions
(Formerly 291 k314(1))

A trial court should consider the patentee's actual reasonable and nondiscriminatory (RAND) commitment in crafting the jury instruction regarding a reasonable royalty

award. 35 U.S.C.A. § 284.

2 Cases that cite this headnote

[36] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k1900 Profits
291 k1904 Reasonable royalty; hypothetical negotiation
(Formerly 291 k318(4.1))

As with all patents, the royalty rate for standard essential patents (SEPs) must be apportioned to the value of the patented invention. 35 U.S.C.A. § 284.

29 Cases that cite this headnote

[37] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k1900 Profits
291 k1904 Reasonable royalty; hypothetical negotiation
(Formerly 291 k318(4.1))

When dealing with standard essential patents (SEPs), to ensure that the royalty award is based on the incremental value that the patented invention adds to the product, not any value added by the standardization of that technology, the patented feature must be apportioned from all of the unpatented features reflected in the standard, and the patentee's royalty must be premised on the value of the patented feature, not any value added by the standard's adoption of the patented technology. 35 U.S.C.A. § 284.

98 Cases that cite this headnote

[38] **Patents** → Reasonable royalty; hypothetical negotiation

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1900 Profits
291k1904 Reasonable royalty; hypothetical negotiation
(Formerly 291k318(4.1))

A royalty award for a standard essential patent (SEP) must be apportioned to the value of the patented invention, or at least to the approximate value thereof, not the value of the standard as a whole, and a jury must be instructed accordingly; however, if a patentee can show that his invention makes up the entire value of the standard, an apportionment instruction probably would not be appropriate. 35 U.S.C.A. § 284.

14 Cases that cite this headnote

[39] **Patents** → Reasonable royalty; hypothetical negotiation

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

When considering a reasonable royalty award, a patent holder should only be compensated for the approximate incremental benefit derived from his invention. 35 U.S.C.A. § 284.

4 Cases that cite this headnote

[40] **Patents** → Reasonable royalty; hypothetical

negotiation

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

The royalty for standard essential patents (SEPs) should reflect the approximate value of that technological contribution, not the value of its widespread adoption due to standardization. 35 U.S.C.A. § 284.

6 Cases that cite this headnote

[41] **Federal Civil Procedure** → Applicability to pleading and evidence

170A Federal Civil Procedure
170AXV Trial
170AXV(G) Instructions
170Ak2174 Applicability to pleading and evidence

A court should not instruct a jury on a proposition of law about which there is no competent evidence.

[42] **Patents** → Instructions

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)4 Trial, Hearing, and Determination
291k1849 Instructions
(Formerly 291k314(1))

When addressing a reasonable royalty award in an infringement case, if an accused infringer wants an instruction on patent hold-up and royalty stacking, it must provide evidence on the record of patent hold-up and royalty stacking in relation to both the reasonable and nondiscriminatory (RAND) commitment at issue and the specific technology referenced

therein. 35 U.S.C.A. § 284.

7 Cases that cite this headnote

authority to the agent, and (2) the agent agreed or consented to the agency relationship.

[43] Patents ➡ Requisites and Validity of Licenses

291 Patents
291VI Patent Rights and Duties
291VI(D) Licenses and Royalties
291k1484 Requisites and Validity of Licenses
291k1485 In general
(Formerly 291k208.1)

Competitor did not have license to practice patents at issue under master purchase agreement (MPA) with subsidiary of corporate parent, where corporate parent was patent owner and it was not a signatory to MPA. 35 U.S.C.A. § 281.

[46] Principal and Agent ➡ Nature of the relation in general

308 Principal and Agent
308I The Relation
308I(A) Creation and Existence
308k1 Nature of the relation in general

An agency relationship under New York law requires the principal to retain control and direction over key aspects of the agent's actions.

[44] Principal and Agent ➡ Questions for jury

308 Principal and Agent
308I The Relation
308I(A) Creation and Existence
308k24 Questions for jury

Under New York law, the existence of an agency relationship, where one party has legal authority to act for another, is a mixed question of law and fact.

[47] Principal and Agent ➡ Authority Conferred as Between Principal and Agent

308 Principal and Agent
308II Mutual Rights, Duties, and Liabilities
308II(A) Execution of Agency
308k49 Authority Conferred as Between Principal and Agent
308k50 In general

Under New York law, a principal cannot grant authority to an agent if the principal does not itself possess the power granted.

[45] Principal and Agent ➡ Nature of the relation in general

308 Principal and Agent
308I The Relation
308I(A) Creation and Existence
308k1 Nature of the relation in general

In order to establish an agency relationship under New York law, the facts must show that: (1) the principal manifested intent to grant

[48] Patents ➡ In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility
(Formerly 291k328(2))

US Patent 6,424,625. Cited.

[49] **Patents** — In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility
(Formerly 291k328(2))

US Patent 6,466,568, US Patent 6,772,215.
Infringed.

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Before O'MALLEY, TARANTO, and HUGHES, Circuit Judges.

Opinion

O'MALLEY, Circuit Judge.

Ericsson, Inc. & Telefonaktiebolaget LM Ericsson (collectively, "Ericsson") brought suit against D-Link Systems, Inc.; Netgear, Inc.; Acer, Inc.; Acer America Corp.; Gateway, Inc.; Dell, Inc.; Toshiba America Information Systems, Inc.; and Toshiba Corp., with Intel Corp. intervening (collectively, "D-Link"), in the United States District Court for the Eastern District of Texas, alleging infringement of, *inter alia*, certain claims from U.S. Patent Nos. 6,424,625 ("the '625 patent"); 6,466,568 ("the '568 patent"); and 6,772,215 ("the '215 patent"). All of the patents at issue generally relate to Wi-Fi technology employed by electronic devices to wirelessly

access the Internet. Ericsson alleged that all of the patents at issue were essential to the Wi-Fi standard, which would mean that all Wi-Fi-capable devices infringe Ericsson's patents.

The case progressed to a jury trial, where the jury found that D-Link infringed the asserted claims of the three patents and assigned roughly \$10 million in damages—approximately 15 cents per infringing *1208 device. After post-trial motions, the district court upheld the jury's infringement and validity findings and refused to grant a new trial based on an alleged violation of the "entire market value rule" ("EMVR") and allegedly deficient jury instructions regarding the standard-setting context and Ericsson's "reasonable and non-discriminatory" licensing obligations derived from that context. For the reasons explained below, we *affirm-in-part, reverse-in-part, vacate-in-part, and remand.*

I. Background

A. Technology and Standards Background

Interoperability is an essential requirement for many electronic devices. For example, if a user brings her laptop to a local coffee shop, she expects that her laptop will charge when she plugs it in and that she will be able to access the Internet when she connects to the coffee shop's wireless network. For the user to be able to charge her laptop, the plug must be in the correct shape and the laptop charger must be able to accept the voltage output of the outlet. For the user to be able to connect to the Internet, her laptop must know, *inter alia*, what frequency to search for the wireless signal, what messages to send to the network to set up a connection, and how to interpret the messages sent from the network. Though most users take for granted that their electronic devices will be able to charge and connect to the wireless Internet anywhere, interoperability does not happen automatically. Because of the multitude of devices, device designers, and manufacturers, there must be an established standard mode of operation to ensure compatibility among all of these different devices.

Standards development organizations ("SDOs") publish standards, which are lists of technical requirements. Compliance with these technical requirements ensures

interoperability among compliant devices. Of course, at least a critical mass of device developers must adopt the standard in order to ensure mass interoperability.¹ Relevant to this case, the Institute of Electrical and Electronics Engineers, Inc. ("IEEE") publishes the 802.11 standards, more commonly known as "Wi-Fi." Br. of Amici Curiae Institute of Electrical and Electronics Engineers, Inc. ("IEEE Br.") at 1–2. The 802.11 standard is the prevailing wireless internet standard and has already reached widespread adoption. A device is considered 802.11-compliant if it adheres to the IEEE's technological requirements stated in the 802.11 standard. Requiring all 802.11-compliant devices to operate in a certain way ensures that every compliant device can communicate with all other 802.11-compliant devices.²

For example, an 802.11-compliant laptop will be able to establish a connection with an 802.11-compliant router. The 802.11 standards also govern how subsequent data is passed between the laptop and the router once that connection is established. This includes, *inter alia*, data formatting, *1209 prioritization, error handling, and flow control.

Importantly for this case, data files are not sent between a router and a laptop in a single transmission. For example, if a laptop user wants to download a video, the router does not send the entire file in a single huge transmission. Instead, each data file is broken into "packets," where each packet is sent in a different transmission. Small files may only require a single packet, whereas large files, e.g., video and sound, may require thousands of packets. The receiving device then reassembles the file out of the packets. The data from the file in the packet is called the "payload." Because packets may be lost or arrive out of order, the 802.11 standard provides ways to handle these errors. For example, each packet has a "header" that is sent to the receiving device with the packet. The header contains, *inter alia*, a sequence number so the receiving device knows the order in which to reassemble the payload of the packets.

Creating some standards, like IEEE's 802.11 standard, is a complicated process that involves the collaboration and can involve cooperation of a number of interested parties. IEEE Br. 4–12. Due to the collaborative nature of this process, the chosen standard may include technology developed by a number of different parties. Sometimes that technology is covered by patents. Because the standard *requires* that devices utilize specific technology, compliant devices *necessarily* infringe certain claims in patents that cover technology incorporated into the standard. These patents are called "standard essential patents" ("SEPs"). IEEE Br. 13–14.

SEPs pose two potential problems that could inhibit widespread adoption of the standard: patent hold-up and royalty stacking. Patent hold-up exists when the holder of a SEP demands excessive royalties after companies are locked into using a standard. Royalty stacking can arise when a standard implicates numerous patents, perhaps hundreds, if not thousands. If companies are forced to pay royalties to all SEP holders, the royalties will “stack” on top of each other and may become excessive in the aggregate. To help alleviate these potential concerns, SDOs often seek assurances from patent owners before publishing the standard. IEEE, for example, asks SEP owners to pledge that they will grant licenses to an unrestricted number of applicants on “reasonable, and nondiscriminatory” (“RAND”) terms. IEEE Br. at 16–18.

B. Ericsson’s SEPs

Ericsson has asserted that all of the patents at issue are SEPs for IEEE’s 802.11(n) standard. Ericsson promised to offer licenses for all of its 802.11(n) SEPs at a RAND rate via letters of assurance to the IEEE. In its letters, Ericsson pledged to “grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.” Joint Appendix (“J.A.”) 17253. The parties agree that this commitment is binding on Ericsson. *See also* IEEE Br. 19–20.

1. The ‘568 Patent

The ‘568 patent, titled “Multi-Rate Radiocommunication Systems and Terminals,” describes prioritizing packets based on the type of payload in the packet. The prioritization of packets is important because networks all have a bandwidth limitation. Bandwidth refers to the amount of data that can be sent across the network at one time. When a network receives multiple requests at the same time, it must be able to respond to all of the requests in a timely fashion. Due to the network’s *1210 bandwidth limitation, however, the messages cannot be sent all at once. Though networks can deal with the bandwidth limitation problem in different ways, each method involves dividing the available bandwidth among the outstanding requests.

The ‘568 patent explains that networks transmit a variety

of different types of payloads, including “voice, video, and data.” According to the ‘568 patent, networks in the prior art did not have the ability to prioritize certain types of data over others. Because certain types of transmissions are less preferable when delayed—e.g., voice calling—the ‘568 patent discloses transmitting the type of transmission as part of the header. This would allow the network to dedicate more bandwidth to the higher priority transmission types, thereby sending those packets more quickly.

Claims 1 and 5 are at issue in this appeal. Claim 1 is representative:

1. A communications station comprising:

a processor for arranging information for transmission including providing at least one first field in which payload information is disposed and providing at least one second field, separate from said first field, which includes *a service type identifier which identifies a type of payload information* provided in said at least one first field; and

a transmitter for transmitting information received from said processor including said at least one first field and said at least one second field.

‘568 patent col. 13 ll. 11–21 (emphasis added).

2. The ‘215 Patent

As described above, files are broken into packets, which are sent to the receiving device with sequence numbers so the receiving device can reassemble the payload in the correct order. Packets, however, are often lost or corrupted during transmission. To ensure that the receiver receives the payload in those lost or corrupted packets, the transmitter will have to resend those packets. For the transmitter to know which packets need to be resent, the receiving device must tell the transmitting device which packets it did not receive or are corrupted. This may be done using an “Automatic Repeat Request” (“ARQ”) protocol. In an ARQ protocol, the receiving device will send a “feedback response” to the transmitting device. Though feedback response messages can be in different formats, the feedback response will generally indicate which packets, if any, are missing or corrupted. The transmitting device will then retransmit those missing packets.

Although ARQ protocols existed in the prior art, the ‘215 patent, titled “Method for Minimizing Feedback

Responses in ARQ Protocols,” asserts that those prior art ARQ protocols wasted bandwidth because they were “static” and not adaptable. By making the feedback response type dynamic, the ‘215 patent discloses that the response could be formatted in the most efficient response type. For example, if 1 packet out of 100 is missing, just the missing packet number could be sent. Conversely, if 50 out of 100 packets are missing, the response could be a bitmap with a bit set to one to indicate the missing packets, instead of a list of all 50 missing packet numbers. To solve this alleged deficiency in the prior art, the ‘215 patent discloses adding a “type identifier field” (“TIF”) to the feedback response that identifies the format of that feedback response. This would allow the receiver to choose dynamically between different types of feedback responses based on *1211 which response would be most efficient, e.g., a list of packet numbers or a bitmap.

Claim 1 is the independent claim at issue:

1. A method for minimizing feedback responses in an ARQ protocol, comprising the steps of:

sending a plurality of first data units over a communication link;

receiving said plurality of first data units; and

responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field and at least one of a sequence number field, a length field, and a content field.

‘215 patent col. 10 ll. 19–28 (emphasis added).

3. The ‘625 Patent

Due to technical limitations, prior art receiving devices used a limited “reception window” for keeping track of which packets it had received. Because this reception window was finite, if the receiving device received a packet outside of the window, it would not accept the packet. The window would not move forward until it received all of the packets in the current window. This process ensures that the receiver will receive all of the missing packets. For certain “delay sensitive applications,” however, a 0% packet loss rate is not required and significantly delayed packets provide no benefit—e.g., “telephony, video conferencing, and delay sensitive control systems.” ‘625 patent col. 3 ll. 51–53.

According to the ‘625 patent, prior art transmitting

devices had no way to tell the receiving device to ignore unnecessary, missing packets and shift the receiving window forward. The ‘625 patent discloses adding a way for the transmitting device to force the receiving device to accept packets that may be out of its reception window. This will also shift the reception window forward and the receiving device will forget about the delayed or lost packets that would no longer provide any benefit.

Claim 1 is at issue in this appeal:

1. A method for discarding packets in a data network employing a packet transfer protocol including an automatic repeat request scheme, comprising the steps of:

a transmitter in the data network commanding a receiver in the data network to a) receive at least one packet having a sequence number that is not consecutive with a sequence number of a previously received packet and b) release any expectation of receiving outstanding packets having sequence numbers prior to the at least one packet; and

the transmitter discarding all packets for which acknowledgment has not been received, and which have sequence numbers prior to the at least one packet.

‘625 patent col. 10 ll. 13–26 (emphases added).

C. The Accused Products

The accused infringers in this case produce a variety of electronic devices, including laptop computers and routers (“the end products”), which incorporate 802.11(n) wireless chips made by Intel. Because all of these end products incorporate 802.11(n)–compliant chips, they must be capable of the functionality mandated by the 802.11(n) standard.

For example, the standard requires that, in the header of an 802.11(n)–compliant packet, there must be a traffic identifier (“TID”) field that indicates the priority of the data. This TID field has a value from 0–7, which indicates its priority. Packages with higher priority typically will be sent more quickly or given more bandwidth than those with lower priority. And the standard explains that one use of this TID identifier is to associate particular values *1212 with particular types of information inside packages—to correspond to a particular kind of payload—as indicated in the following table giving an example:

Table 9-1—UP-to-AC mappings

Priority	UP (Same as 802.1D user priority)	802.1D designation	AC	Designation (informative)
Lowest ↓ Highest	1	BK	AC_BK	Background
	2	—	AC_BK	Background
	0	BE	AC_BE	Best Effort
	3	EE	AC_BE	Best Effort
	4	CL	AC_VI	Video
	5	VI	AC_VI	Video
	6	VO	AC_VO	Voice
7	NC	AC_VO	Voice	

J.A. 15781. In this table, each priority is given an informative “Designation.” For example, priority levels 4 and 5 are given the designation “Video.”

For further examples of required functionality, the 802.11(n) standard also requires feedback response headers to include information about the type of feedback response in the BlockAck field:

Table 7-6k—BlockAck frame variant encoding

Multi-TID subfield value	Compressed Bitmap subfield value	BlockAck frame variant
0	0	Basic BlockAck
0	1	Compressed BlockAck
1	0	Reserved
1	1	Multi-TID BlockAck

J.A. 16778. The 802.11(n) standard allows three different types of feedback responses: Basic BlockAck, Compressed BlockAck, and Multi-TID BlockAck. Sending this information as part of the header is mandatory for interoperability between devices.

All 802.11(n)-compliant devices, moreover, must be capable of accepting any packets they receive. In other words, 802.11(n)-compliant devices do not use a limited reception window. The receiver is just programmed to receive automatically all packets, regardless of the packet’s sequence number.

D. The Dell–Ericsson AB Agreement

Dell argues on appeal that it has a license to practice the patents at issue *1213 based on its prior agreement with Ericsson AB. Ericsson AB is a Swedish manufacturing and development subsidiary of LM Ericsson. LM Ericsson is the Swedish parent corporation of Ericsson

AB and owns the patents-in-suit. LM Ericsson and its North American subsidiary, Ericsson, Inc., are the two plaintiffs-appellees in the suit.

On February 13, 2008, Ericsson AB and Dell executed a Master Purchase Agreement (“MPA”), under which Ericsson AB would provide Dell with mobile broadband products for three years from the date of execution of the MPA. Ericsson AB is the only named “supplier” listed in the MPA, as well as the only signatory to the MPA aside from Dell. The MPA also separately defined Ericsson AB’s “Affiliates.” At issue in this appeal, Section 12.1 of the MPA, entitled “Dispute Resolution,” stated that “[s]upplier will not commence any lawsuit or seek any judicial order affecting Dell or add Dell as a party to any pending legal or administrative proceeding that is not directly related to Dell’s purchase of Products or that may prevent Dell from shipping any Dell or third-party products.” J.A. 6348 (emphasis added).

E. Procedural History

On September 14, 2010, Ericsson filed suit in the United States District Court for the Eastern District of Texas, accusing D-Link of infringing nine patents that, according to Ericsson, were essential to the 802.11(n) wireless standard. Intel, the wireless internet chip supplier for the accused products, intervened. On March 8, 2013, the magistrate judge issued a claim construction order, which the district court judge adopted. *Ericsson Inc. v. D-Link Corp.* (“*Claim Construction Order*”), No. 6:10-cv-473, 2013 WL 949378 (E.D.Tex. Mar. 8, 2013). Shortly before trial, the trial judge denied D-Link’s motion to exclude the testimony of Ericsson’s damages expert, over D-Link’s argument that the testimony violated the EMVR. Prior to trial, the court also granted summary judgment against Dell, rejecting its argument that it had a license based on the MPA.

Although the parties were forced to narrow the case for trial, Ericsson still accused D-Link of infringing 5 different patents at trial. On June 13, 2013, after a 7-day jury trial, the jury found that D-Link infringed the asserted claims in three of Ericsson’s patents—the ‘568, ‘215, and ‘625 patents. The jury also found that the ‘625 patent was valid over a prior art publication (“the Petras reference”). As past damages for that infringement, the jury awarded Ericsson approximately \$10 million—roughly 15 cents per infringing device. After the jury trial, the trial court conducted a separate bench trial regarding several RAND issues.³

Following the bench trial, D-Link filed a motion for judgment as a matter of law (“JMOL”) and a new trial, arguing that the jury’s findings of infringement and no invalidity, as well as its damages award, were not supported by substantial evidence. D-Link further contended that Ericsson’s expert violated the EMVR by relying on licenses that were based on the value of the end products. D-Link asserted, moreover, that the jury was inadequately *1214 instructed regarding Ericsson’s RAND obligation.

The trial court denied D-Link’s post-trial motions, finding that substantial evidence supported: (1) the jury’s findings of infringement; (2) the validity of the ‘625 patent; and (3) the jury’s \$10 million award. The judge also concluded that Ericsson’s damages testimony was not inconsistent with the EMVR and that the jury instruction regarding Ericsson’s RAND obligations was adequate. The judge further found that, based on the jury’s award, 15 cents per product was an appropriate ongoing RAND rate for the three infringed patents. *Ericsson Inc. v. D-Link Corp.* (“JMOL Order”), No. 6:10-cv-473, 2013 WL 4046225 (E.D.Tex. Aug. 6, 2013). According to the trial court, moreover, Ericsson did not violate its RAND obligations by offering Intel a license at the rate of 50 cents per unit. In fact, the court concluded that it was Intel that violated its obligation to negotiate a royalty rate in good faith. *Id.* at *16.

D-Link timely appealed to this court. We have jurisdiction under 28 U.S.C. § 1295(a)(1) (2012).

II. Discussion

On appeal, D-Link raises a number of issues: (1) whether the jury had substantial evidence to find that D-Link infringed claims 1 and 5 of the ‘568 patent; (2) whether the district court properly construed the term “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” in the ‘215 patent, and, if the district court correctly construed that term, whether the jury had substantial evidence to find that D-Link infringed claims 1 and 2 of the ‘215 patent; (3) whether the jury had substantial evidence to find that D-Link infringed claim 1 of the ‘625 patent and that the Petras reference did not anticipate the ‘625 patent; (4) whether Ericsson’s damages theory was presented in violation of the EMVR; (5) whether the jury was instructed properly regarding Ericsson’s RAND obligations; and (6) whether Dell had a license to practice the patents at issue based on its agreement with Ericsson AB. We address each issue in

turn.

A. Infringement

[1] [2] [3] We first address D-Link’s challenges to the infringement findings. We review the trial court’s decision on a motion for JMOL under the law of the regional circuit, in this case, the Fifth Circuit. *Verizon Servs. Corp. v. Cox Fibernet Va., Inc.*, 602 F.3d 1325, 1331 (Fed.Cir.2010). The Fifth Circuit reviews the denial of a motion for JMOL de novo, but the “jury’s verdict can only be overturned if there is no legally sufficient evidentiary basis for a reasonable jury to find as the jury did.” *Miller v. Raytheon Co.*, 716 F.3d 138, 144 (5th Cir.2013). We review issues of patent law applying this court’s case law. Claim construction is an issue of law reviewed de novo. *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272, 1276–77 (Fed.Cir.2014) (en banc). Infringement and anticipation are issues of fact reviewed for substantial evidence. *01 Communique Lab., Inc. v. Log-MeIn, Inc.*, 687 F.3d 1292, 1296 (Fed.Cir.2012); *In re Montgomery*, 677 F.3d 1375, 1379 (Fed.Cir.2012).

1. The ‘568 Patent

[4] D-Link contends that the jury did not have substantial evidence to find infringement of the asserted claims of the ‘568 patent, specifically with respect to the “service type identifier which identifies a type of payload information” limitation. Neither party challenges the district court’s construction of that limitation as “an identifier that identifies the type of information conveyed in the payload. Examples of types of information include, but are not limited to, video, voice, data, and *1215 multimedia.” *Claim Construction Order*, 2013 WL 949378, at *11.

[5] To prove literal infringement, the patentee must show that the accused device contains *each and every limitation* of the asserted claims. *Presidio Components, Inc. v. Am. Tech. Ceramics, Corp.*, 702 F.3d 1351, 1358 (Fed.Cir.2012).

Before the jury, Ericsson relied on the TID field value in the 802.11(n) standard to meet the service type identifier limitation. Ericsson’s expert testified that each TID field contains an integer that establishes a priority of service. According to Ericsson’s expert, each TID value may be

assigned an “informative” designation: Background, Best Effort, Video, or Voice. Ericsson’s expert further stated that devices need to implement the TID field in order to be compliant with the 802.11(n) standard. Ericsson’s expert pointed to several programs that “take advantage” of the “informative” use of the TID capability to assign TID values to payloads of a particular type. J.A. 1395–96 (testifying that CSipSimple, Skype, Ekiga, and Windows Media take advantage of the TID capability). Ericsson also presented an Intel document, recommending that developers utilize the TID field based on the informative designation categories described by the 802.11(n) standard.

D-Link’s expert, on the other side, countered that the TID designations are used to prioritize packets, but do not *identify* the type of information contained in the payload’s packet, e.g., a text email can be sent using the Video designation. D-Link’s expert testified that he ran tests on video and voice programs that did not assign different TID numbers for video and voice data. In other words, the program assigned a TID designation of zero, regardless of the type of data in the payload. On cross examination, however, D-Link’s expert admitted that he also observed *some* traffic in which the TID designation *did* correspond to the content of the payload. Indeed, when presented with his own expert report, D-Link’s expert admitted that at least one program—Ekiga, a video conferencing program—used the video TID designation for its packets with a video payload. In fact, D-Link’s own expert testified that Ekiga was “using the [’568] invention.” J.A. 1568 (“A. Ekiga is using the invention, you said? Q. Yes. That’s what you tested, right? A. Yes.”).

The jury, using the district court’s construction for service type identifier, found that D-Link infringed claims 1 and 5 of the ‘568 patent. The district court denied D-Link’s subsequent JMOL motion, explaining that D-Link’s evidence that the TID designation does not always correspond to the payload is, “[a]t best, ... evidence show[ing] [its] products can be configured in a non-infringing manner.” *JMOL Order*, 2013 WL 4046225, at *6.

On appeal, D-Link first argues that, under the district court’s proper construction, the service type identifier must “*identif[y]* the type of information conveyed in the payload.” *Claim Construction Order*, 2013 WL 949378, at *11 (emphasis added). D-Link insists that the TID field relates only to priority and does not *identify* the payload of the packet. D-Link asserts that Ericsson’s infringement contentions for the ‘568 patent are thus premised on the mere “capability of infringement.” According to D-Link, it was an error for the judge to instruct the jury that “[a]n

accused system or product directly infringes a claim if it is reasonably capable of satisfying the claim elements even though it may also be capable of non-infringing modes of operation.” Appellants’ Br. 35. D-Link argues that mere capability does not constitute infringement unless the claim language is “drawn to capability.” Appellants’ Br. 36 (citing *Finjan, Inc. v. *1216 Secure Computing, Corp.*, 626 F.3d 1197, 1204 (Fed.Cir.2010); *Ball Aerosol & Specialty Container, Inc. v. Limited Brands, Inc.*, 555 F.3d 984, 994 (Fed.Cir.2009)). D-Link asserts, moreover, that Ericsson failed to show any programs that actually assign TID values according to their informative designations, e.g., voice and video.

Ericsson responds that the jury’s finding of infringement of the asserted claims of the ‘568 patent was supported by substantial evidence, including testimony by Ericsson’s expert and the chart showing the informative designations presented to the jury. Ericsson further contends that D-link’s own technical expert’s tests revealed traffic that corresponded to the correct TID designations. Ericsson also points to Intel’s instruction manual that urges developers to use the correct TID designations for the various types of data. According to Ericsson, moreover, this court has repeatedly held that a product infringes if it is reasonably capable of satisfying the claimed elements. For example, Ericsson argues that, in *Finjan*, this court “held that where an apparatus claim is styled as a component ‘for’ performing some function, the claim is drawn to capability and the reasonable capability test applies.” Appellees’ Br. 33 (citing *Finjan*, 626 F.3d at 1204–05).

We are unpersuaded by D-Link’s argument that the jury did not have substantial evidence to find infringement of claims 1 and 5 of the ‘568 patent. We recognize that the evidence showed that the TID field does not always identify its payload type. Indeed, D-Link’s ex-pert’s testimony that many programs did not utilize the TID field according to the informative designations was unchallenged. D-Link’s expert, however, also admitted that at least one video calling program “us[ed] the invention.” J.A. 1568. Furthermore, Ericsson’s expert testified as to several examples of programs running on the accused devices where the TID field indicated the type of payload.

We understand that the TID field may be inherently only a priority field. But that field necessarily has the capability to be used to identify the payload type, as shown by the informative example in the standard and by the proof that it was in fact so used by some device users. Crucially, this capability satisfies the patent claim language here, which means all accused devices could be

found by the jury to infringe.

In *Fantasy Sports Properties, Inc. v. Sportsline.com, Inc.*, 287 F.3d 1108 (Fed.Cir.2002), we held that software for playing fantasy football could infringe a claim covering a “computer for playing football.” 287 F.3d at 1118. Though a user must install and activate functions in the software to infringe the claims, the *Fantasy Sports* opinion explained that the user is only activating means that are already present in the underlying software. *Id.* In *Ball Aerosol*, on the other hand, the patent claimed an apparatus arranged in a certain manner. We reversed a grant of summary judgment of infringement because the claims were not drawn to capability and there was no evidence that the accused device “was ever placed in the infringing configuration.” 555 F.3d at 995.

In *Finjan*, we found that the system claims at issue described “capabilities,” without describing any software components that must be “active” or “enabled.” For example, the claim language in *Finjan* required “a logical engine for preventing execution” and “a communications engine for obtaining a Downloadable.” *Finjan*, 626 F.3d at 1204–05 (emphases added in opinion). In *Finjan*, we found that, in order for the accused system to infringe, the logical engine only needed to be *reasonably capable* of “preventing execution” *1217 and the communications engine only needed to be *reasonably capable* of “obtaining a Downloadable.” *Id.* Our court explained further in *Versata*, that, “[w]hile ‘a device does not infringe simply because it is possible to alter it in a way that would satisfy all the limitations of a patent claim,’ ... an accused product ‘may be found to infringe if it is reasonably capable of satisfying the claim limitation.’ ” *Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1262 (Fed.Cir.2013) (quoting *Finjan*, 626 F.3d at 1204). In *Versata*, we found that the patentee presented evidence that, if a user followed the accused infringer’s own instructions, the system would operate in an infringing manner. *Id.* at 1263. In sum, when the asserted claims recite capability, our case law supports finding infringement by a “reasonably capable” accused device on a case-by-case basis particularly where, as here, there is evidence that the accused device is *actually used* in an infringing manner and can be so used without significant alterations. See J.A. 1568 (“A. Ekiga is using the invention, you said? Q. Yes. That’s what you tested, right? A. Yes.”); see also *Ball Aerosol*, 555 F.3d at 995.

The asserted claims of the ‘568 patent are most similar to the claim at issue in *Finjan*. Both use language reciting capability, as opposed to actual operation. Compare *Finjan*, 626 F.3d at 1204–05 (system claims reciting “a logical engine for preventing execution” and “a

communications engine for obtaining a Downloadable” (emphases added)), with ‘568 patent col. 13 ll. 12–18 (“a processor for arranging information for transmission ... which identifies a type of payload information...” (emphasis added)). Accordingly, just as the accused system in *Finjan* only needed to have components that are reasonably capable of “preventing execution” and “obtaining a Downloadable” to infringe, *Finjan*, 626 F.3d at 1204–05, D-Link’s products only need to have a component that is reasonably capable of “arranging information for transmission ... which identifies a type of payload information...” ‘568 patent col. 13 ll. 12–18. Furthermore, similar to the evidence the patentee presented in *Versata*, Ericsson presented evidence that Intel—the 802.11-compliant chip producer—instructed developers to use the TID field in an infringing manner. See *Versata*, 717 F.3d at 1263. We therefore find that the jury could properly base its infringement finding on the reasonable capability of the unmodified accused devices.

For the foregoing reasons, we hold that substantial evidence supports the jury’s finding that D-Link infringed claims 1 and 5 of the ‘568 patent.

2. The ‘215 Patent

¹⁶¹ D-Link challenges the district court’s construction of the term “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” in the ‘215 patent. Even if we affirm the district court’s construction of that term, according to D-Link, the jury did not have substantial evidence to find infringement of claims 1 and 2 of the ‘215 patent. We first consider the proper scope of the claims before comparing the construed claims to the accused devices. See *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1129 (Fed.Cir.2011).

a. Claim Construction

¹⁷¹ ¹⁸¹ ¹⁹¹ Generally, claim terms should be given their ordinary and customary meaning to a person having ordinary skill in the art at the time of the effective date of the patent application. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed.Cir.2005) (en banc). To ascertain the scope *1218 and meaning of the asserted claims, we look to the words of the claims themselves, the specification, the prosecution history, and any relevant extrinsic evidence. *Id.* at 1315–17. This inquiry typically begins

and ends with the intrinsic evidence. In fact, the specification is the single best guide to the meaning of the claim terms; it is usually dispositive. *Id.* at 1318 (“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive....’ ” (internal citations omitted)).

D-Link challenges the district court’s construction of “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” as “responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types.” *Claim Construction Order*, 2013 WL 949378, at *4–6. D-Link argues that the district court should have adopted its proposed construction: “responsive to the receiving step, generating a message field including a field identifying the type of feedback response *that is selected from multiple available feedback responses in order to minimize the size or number of feedback responses.*” *Id.* at *4 (emphasis added). In essence, D-Link contends that the “type identifier field” must be used to “select[] from multiple available feedback responses” and “minimize the size or number of feedback responses.” *Id.*

D-Link asserts that, because the entire specification of the ‘215 patent emphasizes that the point of the invention is to *select* the feedback response that *minimizes* the size or number of feedback responses, we must limit the scope of the claims to capture the scope of the actual invention. Ericsson responds that the district court properly excluded the two extraneous limitations—selecting and minimizing—in its construction. Because none of the language cited by D-Link amounts to a clear disavowal of the claim scope, Ericsson contends that we should not read limitations from the specification into the claims.

^[10] We agree with Ericsson that D-Link’s proposed construction improperly reads limitations from the specification into the claims. Although the claims must be read in light of the specification, it is important that we “avoid importing limitations from the specification into the claims.” *Phillips*, 415 F.3d at 1323. We recognize that there is a fine distinction between these two concepts, but we must, as always, draw this distinction from the point of a view of a person of ordinary skill in the art. *Id.* Although the ‘215 patent envisions that the type identifier field be used to select the most efficient format of feedback response, the specification never requires the selection of the feedback response type that minimizes the size or number of feedback responses. *See id.* at 1326–27 (“The fact that the written description of the [] patent sets forth multiple objectives to be served by the baffles

recited in the claims confirms that the term ‘baffles’ should not be read restrictively to require that the baffles in each case serve all of the recited functions.”). The type identifier field actually serves another purpose—one distinct from the proposed selecting and minimizing functions—it must *identify* the type of feedback response. This purpose is encompassed by the district court’s construction. Although the type identifier field may be used to select and minimize, a person of ordinary skill would not read those limitations into the claims when the field has another purpose as well.

D-Link relies on *Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354 (Fed.Cir.2004) to *1219 argue that we should use the preamble of the asserted claim to limit our construction. In *Metabolite*, we stated that “[a] preamble may provide context for claim construction, particularly, where as here, that preamble’s statement of intended use forms the basis for distinguishing the prior art *in the patent’s prosecution history.*” 370 F.3d at 1362 (emphasis added). D-Link omits the italicized part of the *Metabolite* quote in its briefs, likely because the selection and minimization requirements were not used as the basis for distinguishing the prior art in the prosecution history of the ‘215 patent. Indeed, the addition of the type identifier field, which *identifies* the type of feedback response, is a sufficient basis for distinguishing the prior art. This is reflected in the district court’s correct construction because the message field must “includ[e] a field that *identifies* the message type of the feedback response message from a number of different message types.” *Claim Construction Order*, 2013 WL 949378, at *4 (emphasis added).

We therefore hold that the district court correctly did not read the additional limitations D-Link identifies into the “type identifier field” term of the ‘215 patent; we adopt the district court’s construction.

b. Infringement

^[11] D-Link argues that, even under the district court’s construction, the jury did not have substantial evidence to find that the accused devices met the “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” step in the asserted claims of the ‘215 patent.

^[12] ^[13] ^[14] A method claim is directly infringed when someone practices every step of the patented method. *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 576 F.3d 1348, 1359 (Fed.Cir.2009). In order to prove induced

infringement, the patentee must show that the alleged infringer performs, or induces another party to perform, every single step in the method. *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 572 U.S. —, 134 S.Ct. 2111, 2117, 189 L.Ed.2d 52 (2014). Inducement requires that the alleged infringer “knowingly induced infringement and possessed specific intent to encourage another’s infringement.” *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1306 (Fed.Cir.2006).

At trial, Ericsson presented evidence in the form of expert testimony that all 802.11(n)-compliant products, including the accused products, must send an appropriate response in the BlockAck field. Furthermore, Ericsson presented evidence that the BlockAck field must indicate one of three different feedback response types. D-Link, to the contrary, presented evidence that, although the accused devices send messages that contained the BlockAck field, the accused products only use one type of feedback response type. D-Link argued that, because its products only use a single feedback response, the accused product could not satisfy the “from a number of different message types” limitation.

The jury found that D-Link infringed claims 1 and 2 of the '215 patent. In denying D-Link’s subsequent JMOL motion, the district court explained that whether the use of a single feedback response meets the “from a number of different message types” limitation is precisely the type of factual question that is to be resolved by a jury. The district court clarified that the jury was authorized to find direct infringement of a method claim by D-Link if its products automatically perform the disputed steps without user modification. *JMOL Order*, 2013 WL 4046225, at *9 (citing *1220 *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1331 (Fed.Cir.2010)). The district court reasoned that, because the accused products performed the claimed method when operated by D-Link’s customers without any modification, a finding of direct infringement was justified. Regarding indirect infringement, the district court found that Ericsson had presented substantial evidence that D-Link possessed the requisite intent because they continued to sell 802.11(n)-compliant devices even after receiving notice of the patents.

On appeal, D-Link argues that, under the district court’s construction, the feedback response message type must be generated “from a number of *different* message types.” *Claim Construction Order*, 2013 WL 949378, at *4 (emphasis added). According to D-Link, because the accused products always send a single type of feedback response, a jury did not have substantial evidence to find infringement. D-Link further asserts that, under Federal

Circuit law, a party that sells a product containing instructions to perform a patented method does not directly infringe the method. Appellants’ Br. 46–47 (citing *Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech.*, 709 F.3d 1348, 1362 (Fed.Cir.2013); *Ricoh Co. v. Quanta Comp. Inc.*, 550 F.3d 1325 (Fed.Cir.2008)). Regarding induced infringement, moreover, D-Link contends that Ericsson did not present sufficient facts from which a jury could conclude that it knew the induced acts constituted infringement. According to D-Link, knowledge of the patents plus advertising compliance with 802.11(n) is not enough evidence upon which to base a finding of induced infringement.

Ericsson responds that the claim language does not require that the accused products send multiple types of feedback responses, only that they have a field that “identifies the message type.” According to Ericsson, because the accused products must utilize the BlockAck field to be compliant with the 802.11(n) standard, the jury had substantial evidence to find infringement. According to Ericsson, moreover, the *Ricoh* case relied on by D-Link applies only to software, not to “hard-wired” devices that will automatically perform the infringing steps. Ericsson asserts that, like the accused products in *SiRF*, D-Link designs the accused products to perform the method steps automatically whenever the products are used. According to Ericsson, substantial evidence supports the finding of induced infringement, including evidence that D-Link advertises 802.11(n) compliance and submits its products for interoperability testing and certification.

We must address two different issues: (1) whether the jury had substantial evidence to find that the BlockAck field was selected “from a number of *different* message types” and (2) whether the jury had substantial evidence to find direct or indirect infringement by D-Link. First, we agree with the district court and Ericsson that the jury had substantial evidence to find that using the BlockAck field meets the “from a number of different message types” step. *Claim Construction Order*, 2013 WL 949378, at *4. Nothing in the court’s proper construction requires that multiple different feedback response types actually be used. Indeed, we have already rejected D-Link’s proposed construction that would have added this requirement. At trial, Ericsson presented evidence that the 802.11(n) standard allows multiple types of feedback responses. It is undisputed, moreover, that the accused devices send the code identifying the feedback response type in the BlockAck field, as required by the 802.11(n) standard. Although the accused devices only use one type of feedback response, the jury had substantial evidence to find that the accused devices can perform the method

*1221 claimed in the '215 patent. Indeed, this is precisely the type of factual dispute that a jury should be resolving.

¹⁵¹ Because the asserted claim is a method claim, however, the accused devices must also *actually perform* that method. See *Cardiac Pacemakers*, 576 F.3d at 1359. Although the jury was instructed on both direct and indirect infringement, the verdict form only indicated that the jury found that D-Link infringed claims 1 and 2 of the '215 patent. In other words, the verdict did not distinguish between direct and indirect infringement. For the reasons explained below, we must address both D-Link's direct and indirect infringement arguments.

The district court relied on *SiRF* to conclude that the jury properly found that D-Link *directly* infringed the method claim by selling the accused products. In *SiRF*, this court affirmed the International Trade Commission's finding that the manufacturer of GPS systems *directly* infringed the asserted method claims. *SiRF*, 601 F.3d at 1331. The method claims at issue in *SiRF* required some, but not all, of the steps of the claim to be executed by a satellite, which was controlled by the accused infringers. The remaining steps were then automatically performed by the accused GPS products, which were in possession of the end users. *Id.* at 1329–30. In *SiRF*, accordingly, we concluded that, on these facts, it was the accused infringers that performed all the steps required for direct infringement, not the customers who possessed the GPS products. *Id.* at 1331.

In *Ricoh*, on the other hand, we held “that a party that sells or offers to sell software containing instructions to perform a patented method does not infringe the patent under § 271(a).” *Ricoh*, 550 F.3d at 1335. The *Ricoh* court explained that there is a difference between the instructions contained in software and the process within the meaning of § 271(a). Our other decisions echo the idea from *Ricoh* that the direct infringer must *actually* perform the steps in the method claim. See, e.g., *Aristocrat Techs.*, 709 F.3d at 1362 (noting that to prove direct infringement the patentee must show “each and every step of the method or process was performed” by either the accused infringer personally or “through another acting under [the accused infringer’s] direction or control”); *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 692 F.3d 1301, 1307 (Fed.Cir.2012) (“[F]or a party to be liable for direct patent infringement under 35 U.S.C. § 271(a), that party must commit all the acts necessary to infringe the patent, either personally or vicariously.”), *overruled on other grounds*, 134 S.Ct. 2111; *Travel Sentry, Inc. v. Tropp*, 497 Fed.Appx. 958, 965 (Fed.Cir.2012) (holding that a party is liable for direct infringement of a method claim only if that party

exercises “control or direction” over the performance of each step of the claim, including those the party does not itself perform); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed.Cir.2009) (finding sale of software alone does not directly infringe method claims of patent and seller can only be liable for infringement as contributor and/or inducer); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311 (Fed.Cir.2006) (“Method claims are only infringed when the claimed process is performed, not by the sale of an apparatus that is capable of infringing use.”).

Contrary to Ericsson's assertions, our decision in *SiRF* did not create direct infringement liability whenever an alleged infringer sells a product that is capable of executing the infringing method. Our decision in *SiRF* is not applicable here because all of the steps of the method in *1222 claims 1 and 2 of the '215 patent are performed on the end product, which is controlled by a third party. See *SiRF*, 601 F.3d at 1331. Unlike the method in *SiRF*, there are no steps automatically performed by equipment controlled by D-Link. In fact, none of our decisions have found direct infringement of a method claim by sales of an end user product which performs the entire method, and we decline to do so here. Because Ericsson cannot point to any evidence in the record that D-Link performed the infringing steps, or that any of its customers were under its direction or control, the jury did not have substantial evidence to find *direct* infringement of claims 1 and 2 of the '215 patent.

Importantly, however, the district court did not instruct the jury that D-Link could directly infringe a method claim if the accused products were used to execute the patented steps. D-Link does not dispute the legal propriety of the direct infringement instructions. This means that, if the jury found direct infringement, it was a factual error, not a legal error. Although we think that it would have been a factual error for the jury to find direct infringement of the method claims by D-Link itself, that error is not enough to set aside the jury verdict because the jury's finding also could have been premised on indirect infringement. See *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed.Cir.2010) (stating that a general verdict will not be set aside “ ‘simply because the jury might have decided on a ground that was supported by insufficient evidence,’ ” but rather jury verdict should be upheld if there is sufficient evidence to support any of the plaintiff's alternative factual theories) (quoting *Walther v. Lone Star Gas Co.*, 952 F.2d 119, 126 (5th Cir.1992)); cf. *Griffin v. United States*, 502 U.S. 46, 112 S.Ct. 466, 116 L.Ed.2d 371 (1991) (holding that a general verdict should be invalidated when one of the possible bases was based on *legal* error).

We agree with the district court and Ericsson that the jury had substantial evidence to find that D-Link induced infringement of claims 1 and 2 of the '215 patent. Ericsson presented evidence that D-Link knew about the patents and knew that the patents potentially were essential to the 802.11(n) standard—a standard with which D-Link intentionally complied. D-Link countered by presenting evidence that it did not think its actions constituted infringement of any of the claims of the '215 patent. Making findings of fact by weighing evidence—such as the evidence presented by the parties regarding induced infringement—is the role of the jury. Questions of intent are quintessential jury questions. See *Allen Organ Co. v. Kimball Int'l, Inc.*, 839 F.2d 1556, 1567 (Fed.Cir.1988) (“Intent is a factual determination particularly within the province of the trier of fact.”). We cannot say that the jury did not have substantial evidence to find induced infringement and we decline to supplant the jury’s factual findings with our own. E.g., *Lucent*, 580 F.3d at 1323 (“Having perused the evidence, we agree with Microsoft that the evidence is not strong, but we are not persuaded that the jury was unreasonable in finding that Microsoft possessed the requisite intent to induce at least one user of its products to infringe the claimed methods.”).

For these reasons, we affirm the jury’s finding of infringement of claims 1 and 2 of the '215 patent.

3. The '625 Patent

¹⁶¹ D-Link argues on appeal that the jury did not have substantial evidence to find that the accused devices infringed claim 1 of the '625 patent or find the patent valid over the Petras prior art reference. *1223 We examine each of the jury’s findings in turn.

a. Infringement

At trial, Ericsson argued that every transmitted data packet acts as its own “command to receive” from the transmitter. Ericsson’s expert testified that all 802.11(n)-compliant receivers automatically accept all packets, even if those packets are out of order. Ericsson contended that this was just like an embodiment of the '625 patent where every packet is commanding the receiver to accept an out-of-order packet. D-Link countered that, because the normal operation of

802.11(n)-compliant receivers is to accept *all* packets, there is no “command to receive” from the transmitter. D-Link insisted that Ericsson failed to present any evidence that a normal packet will release the receiver from expectations of receiving outstanding packets.

The jury found that D-Link infringed claim 1 of the '625 patent. The district court refused to grant D-Link’s request for a JMOL, explaining that the jury was entitled to credit Ericsson’s expert over D-Link’s expert.

D-Link argues on appeal that the accused products are already programmed to accept all valid data packets and do not need to be commanded by the transmitter to accept out-of-order packets. D-Link contends that this means the jury’s finding is not supported by substantial evidence. According to D-Link, Ericsson’s expert admitted that regular packet transmissions could not act as a command to receive because the receivers already had the ability to receive the packets. D-Link explains that, because the receiver already had the ability to receive, the transmitter did not command the receiver to do anything.

Ericsson responds that its expert testified at trial that the accused products met each and every limitation of the claims in the '625 patent. According to Ericsson, the fact that a receiver must receive a packet from the transmitter, even if out of order, qualifies the message as a “command to receive.” Ericsson emphasizes that the patent conceived of an embodiment where the “command to receive” is sent with every single message.

We agree with D-Link that the jury did not have substantial evidence to find that the accused products infringe claim 1 of the '625 patent. The asserted claim of the '625 patent requires that “a transmitter ... command [] a receiver ... to a) receive at least one packet ... and b) release any expectation of receiving outstanding packets....” '625 patent col. 10 ll. 16–21 (emphases added). But there is no evidence in the record that it is the transmitter in the accused devices that *commands* the receiver to receive the out-of-order packets and release expectations of receiving earlier packets. Instead, all of Ericsson’s evidence confirms that the receiver automatically handles out-of-order packets. In other words, the transmitter does not command the receiver to do anything. The receiver just operates as programmed to handle out-of-order packets, regardless of the messages that the transmitter sends. Indeed, Ericsson’s expert admitted that the receivers already have the ability to accept all packets. J.A. 1412–13 (“Question: If a receiver could receive a packet that a transmitter was sending to it, is it correct that you would not need the command to receive in the '625 patent to command or force the

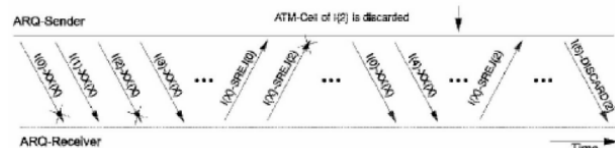
receiver to receive the packet? Answer: I mean, that almost seems like a tautology. If it could receive, then would you need to insist that it receives it? No, because it could already receive it.”). In other words, the transmitter *1224 does not command the receiver to accept the packets.

Because no reasonable jury could have found that the accused products meet each and every limitation of claim 1 of the ‘625 patent, we reverse the district court’s refusal to grant JMOL of no infringement as to that patent.

b. Invalidity

[17] [18] [19] D-Link argued at trial that the Petras reference, a prior art publication, anticipated claim 1 of the ‘625 patent. A claim is anticipated only if each and every limitation is found either expressly or inherently in a single prior art reference. *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 21 (Fed.Cir.2012). Because patents are presumed valid, anticipation must be proven by clear and convincing evidence. *Id.*

The Petras reference discloses one type of ARQ protocol where the transmitter can send a “discard message” to the receiver. The discard message informs the receiver that a message will not be resent. The following figure from Petras is illustrative:



J.A. 15041. In this figure, the transmitter first sends packets 0–3 to the receiver before the receiver sends back its first feedback responses. Due to delay and packet loss, when the transmitter is first notified that the receiver did not receive packet number 2—the second I(X)–SREJ(2) message—the transmitter has already deleted packet 2. The transmitter will then inform the receiver that it can ignore packet number 2 by sending the discard packet message—the I(5)–DISCARD(2) message.

At trial, D-Link argued that a discard message acts as the “command to receive” from the transmitter. Ericsson’s expert testified against this theory, explaining that the discard messages were not commands to receive; discard messages were merely notifications that the transmitter had discarded a packet. The jury found that Petras did not anticipate the ‘625 patent, and the district court refused to

overturn that finding.

On appeal, D-Link argues that Petras discloses sending a discard message, which “commands” the receiver to stop waiting for delayed packets and shift its reception window forward to receive later packets. Ericsson responds that substantial evidence supports the jury’s finding of no anticipation, pointing to its expert’s testimony that packet discard messages were well known in the prior art. Ericsson also asserts that D-Link’s expert testimony was inconsistent, so the jury was correct to discredit his testimony.

We agree with the district court and Ericsson that substantial evidence supports the jury’s finding that Petras did not anticipate the ‘625 patent. D-Link’s arguments on appeal essentially ask us to credit its position on discard messages over Ericsson’s. We decline to do so. Both parties presented expert testimony regarding whether Petras anticipates the ‘625 patent, and we see no reason why the *1225 jury was not entitled to credit Ericsson’s evidence over D-Link’s evidence. We therefore see no reason to disturb the jury’s verdict.

B. Damages

Having affirmed infringement with respect to two patents, we must also address the damages issues raised by D-Link. As explained below, we vacate the jury’s damages award and remand for further proceedings consistent with this opinion.

[20] [21] [22] We review decisions on motions for a new trial and the admission of expert testimony under the law of the regional circuit. *Verizon*, 602 F.3d at 1331. The Fifth Circuit reviews the denial of a new trial motion for abuse of discretion, reversing only if there is an “an absolute absence of evidence to support the jury’s verdict.” *Duff v. Werner Enters., Inc.*, 489 F.3d 727, 729 (5th Cir.2007). The Fifth Circuit reviews the trial court’s admission or exclusion of expert testimony for an abuse of discretion. *Snap-Drape, Inc. v. Comm’r*, 98 F.3d 194, 197 (5th Cir.1996).

[23] [24] We review de novo the legal sufficiency of a jury instruction on an issue of patent law. *Sulzer Textil A.G. v. Picanol N.V.*, 358 F.3d 1356, 1363 (Fed.Cir.2004). A jury verdict will be set aside only if the jury instructions were “legally erroneous” and the “errors had prejudicial effect.” *Id.*

I. Admissibility of License Evidence

Before trial, D-Link moved to exclude certain testimony by Ericsson's damages expert, arguing that it violated the EMVR. Specifically, D-Link argued that, because the damages calculations were, in part, based on licenses which were themselves tied to the entire value of the licensed products, even though the technology being licensed related to only a component of those products, the testimony was impermissible as a matter of law. In denying that motion, the district court explained that Ericsson's expert's reference to those prior licenses was not improper because the expert properly apportioned any damages calculations based on those licenses to account for the value of the patents at issue. D-Link noted its objection to this line of testimony at trial by entering a continuing objection to Ericsson's expert's testimony to the extent it was predicated on or made any reference to these licenses. J.A. 1437-38 at 4:37-5:13. At trial, both Ericsson and D-Link then referred to the value of laptops generally. J.A. 1325 at 11:24-12:21; J.A. 1332 at 37:22-38:11. After the jury found infringement and awarded Ericsson 15 cents per infringing device, D-Link moved for JMOL and for a new trial, arguing that the admission of this expert testimony violated the EMVR. The district court denied both motions.

On appeal, D-Link argues that the district court prejudicially erred by: (1) not excluding Ericsson's damages expert's testimony on the challenged licenses, and (2) allowing Ericsson's counsel to compare the cost of the end product to the requested royalty at trial. According to D-Link, because Ericsson did not dispute that the asserted claims are practiced entirely by the Wi-Fi chips—not by other components of the accused end products—Ericsson should never have been allowed to base its damages award or its arguments at trial on the price of the end products.

Ericsson responds that the jury award of 15 cents per infringing product is consistent with comparable Ericsson licenses, insisting that our court has found comparable licenses to be the best evidence of a reasonable royalty rate. Ericsson further argues that the jury award is consistent with "industry norms" and in accord with *1226 its damages expert's testimony. According to Ericsson, its expert conducted a rigorous analysis, which separated the value of the patents at issue from any other patents covered by the licenses he referenced. Because of this apportionment, Ericsson asserts that neither its damages calculation nor its expert's reference to actual industry licenses was improper, under the EMVR or otherwise. With respect to counsel's reference to the cost of laptops at trial, Ericsson argues that D-Link never objected to these references, and made similar references

itself.

We conclude that the district court properly admitted evidence of the licenses to which D-Link objects and that any objection to counsel's references to the cost of items incorporating the allegedly infringing chips was waived. While a number of our cases have referred to the concept of an entire market value "rule," the legal standard actually has two parts, which are different in character. There is one substantive legal rule, and there is a separate evidentiary principle; the latter assisting in reliably implementing the rule when—in a case involving a per-unit royalty—the jury is asked to choose a royalty base as the starting point for calculating a reasonable royalty award.

As we explained recently in *VirnetX, Inc. v. Cisco Systems, Inc.*, 767 F.3d 1308 (Fed.Cir.2014), where multi-component products are involved, the governing rule is that the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more. 767 F.3d at 1326 (citing *Garretson v. Clark*, 111 U.S. 120, 121, 4 S.Ct. 291, 28 L.Ed. 371 (1884)). As a substantive matter, it is the "value of what was taken" that measures a "reasonable royalty" under 35 U.S.C. § 284. *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 648, 35 S.Ct. 221, 59 L.Ed. 398 (1915). What is taken from the owner of a utility patent (for purposes of assessing damages under § 284) is only the patented technology, and so the value to be measured is only the value of the infringing features of an accused product.

^[25] ^[26] When the accused infringing products have both patented and unpatented features, measuring this value requires a determination of the value added by such features. Indeed, apportionment is required even for non-royalty forms of damages: a jury must ultimately "apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features" using "reliable and tangible" evidence. *Garretson*, 111 U.S. at 121, 4 S.Ct. 291. Logically, an economist could do this in various ways—by careful selection of the royalty base to reflect the value added by the patented feature, where that differentiation is possible; by adjustment of the royalty rate so as to discount the value of a product's non-patented features; or by a combination thereof. The essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product.

^[27] ^[28] Our cases have added to that governing legal rule an important evidentiary principle. The point of the

evidentiary principle is to help our jury system reliably implement the substantive statutory requirement of apportionment of royalty damages to the invention's value. The principle, applicable specifically to the choice of a royalty base, is that, where a multi-component product is at issue and the patented feature is not the item which imbues the combination of the other features with value, care must be taken to avoid misleading the jury by placing undue emphasis on the value of the entire product. *1227 It is not that an appropriately apportioned royalty award could never be fashioned by starting with the entire market value of a multi-component product—by, for instance, dramatically reducing the royalty rate to be applied in those cases—it is that reliance on the entire market value might mislead the jury, who may be less equipped to understand the extent to which the royalty rate would need to do the work in such instances. See *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67, 68 (Fed.Cir.2012) (barring the use of too high a royalty base—even if mathematically offset by a “‘low enough royalty rate’”—because such a base “carries a considerable risk” of misleading a jury into overcompensating, stating that such a base “‘cannot help but skew the damages horizon for the jury’” and “make a patentee’s proffered damages amount appear modest by comparison” (quoting *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320 (Fed.Cir.2011))). Thus, where the entire value of a machine as a marketable article is “properly and legally attributable to the patented feature,” the damages owed to the patentee may be calculated by reference to that value. *Id.* Where it is not, however, courts must insist on a more realistic starting point for the royalty calculations by juries—often, the smallest salable unit and, at times, even less. *VirnetX*, 767 F.3d at 1327–28.

We apply these concepts to a challenge to expert testimony regarding licenses in which royalties were set by reference to the value of an end product. We conclude that the expert testimony about which D-Link complains violated neither the rule from *Garretson* regarding apportionment, nor the evidentiary principle demanding an appropriate balance between the probative value of admittedly relevant damages evidence and the prejudicial impact of such evidence caused by the potential to mislead the jury into awarding an unduly high royalty. We find, accordingly, that the district court did not err by failing to exercise its discretion under *Federal Rule of Evidence 403* to exclude the license testimony at issue here. *Uniloc*, 632 F.3d at 1320; see *LaserDynamics*, 694 F.3d at 77–78 (finding that the district court abused its discretion by failing to exclude a license under *Federal Rule of Evidence 403*).

^[29] This court has recognized that licenses may be presented to the jury to help the jury decide an appropriate royalty award. See, e.g., *Monsanto Co. v. McFarling*, 488 F.3d 973, 978 (Fed.Cir.2007) (“An established royalty is usually the best measure of a ‘reasonable’ royalty for a given use of an invention...”); *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F.Supp. 1116, 1120 (S.D.N.Y.1970) (finding that “royalties received by the patentee for the licensing of the patent in suit” is a relevant factor for the jury to consider). Prior licenses, however, are almost never perfectly analogous to the infringement action. *VirnetX*, 767 F.3d at 1330. For example, allegedly comparable licenses may cover more patents than are at issue in the action, include cross-licensing terms, cover foreign intellectual property rights, or, as here, be calculated as some percentage of the value of a multi-component product. Testimony relying on licenses must account for such distinguishing facts when invoking them to value the patented invention. Recognizing that constraint, however, the fact that a license is not perfectly analogous generally goes to the weight of the evidence, not its admissibility. See *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1326 (Fed.Cir.2014) (“Here, whether these licenses are sufficiently comparable such that Motorola’s calculation is a reasonable royalty goes to the weight of the evidence, not its admissibility.”); accord *ActiveVideo Networks, Inc. v. *1228 Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1333 (Fed.Cir.2012) (“Although we may not have decided these evidentiary issues the same way had we presided over the trial, the district court did not abuse its discretion.”). In each case, district courts must assess the extent to which the proffered testimony, evidence, and arguments would skew unfairly the jury’s ability to apportion the damages to account only for the value attributable to the infringing features.

^[30] As the testimony at trial established, licenses are generally negotiated without consideration of the EMVR, and this was specifically true with respect to the Ericsson licenses relating to the technology at issue. Making real world, relevant licenses inadmissible on the grounds D-Link urges would often make it impossible for a patentee to resort to license-based evidence. Such evidence is relevant and reliable, however, where the damages testimony regarding those licenses takes into account the very types of apportionment principles contemplated in *Garretson*. In short, where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology, as it did here, the mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis—and the district court exercises its discretion not

to exclude such evidence-is not reversible error.⁴

¹³¹ We do conclude, however, that, when licenses based on the value of a multi-component product are admitted, or even referenced in expert testimony, the court should give a cautionary instruction regarding the limited purposes for which such testimony is proffered if the accused infringer requests the instruction. The court should also ensure that the instructions fully explain the need to apportion the ultimate royalty award to the incremental value of the patented feature from the overall product. As to the first, while D-Link did ask for a generic instruction on the EMVR, it did not ask for an instruction specifically referencing the licenses or the testimony relating thereto about which it objected. On the second, while the court told the jury about the *Georgia-Pacific* factors—which do take the concepts of apportionment into account to some extent—it did not separately caution the jury about the importance of apportionment.⁵ As explained in Section B.2 below, we need not determine whether D-Link preserved its objections to these instructions or, if it did, whether it was prejudiced by the instructions actually given on these issues, because we vacate the damages award for other reasons.

¹³² As noted, D-Link also argues that the district court prejudicially erred by allowing Ericsson’s counsel to reference the total cost of a laptop when discussing the requested royalty rate. We find that D-Link waived this argument. D-Link’s continuing objection only applied to Ericsson’s expert’s reference to the prior licenses. *See* J.A. 1437–38 at 4:37–5:13. Nowhere in the record does D-Link object to counsel’s reference to the market value of a laptop at trial. In fact, D-Link actually referred to the value of its own end products on cross-examination. And D-Link *1229 failed to raise this issue in its post-trial motions. *See* J.A. 1332 at 37:22–38:11. We see no prejudice or injustice that would require us to address this issue for the first time on appeal and we therefore decline to do so. *See Novo Nordisk A/S v. Becton Dickinson & Co.*, 304 F.3d 1216, 1220 (Fed.Cir.2012) (“Although appellate tribunals are not prohibited from taking remedial action when it is apparent that prejudice or unfairness entered the trial and the interest of justice requires, ‘counsel for the defense cannot as a rule remain silent, interpose no objections, and after a verdict has been returned seize for the first time on the point that the comments to the jury were prejudicial.’ ” (quoting *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 238–39, 60 S.Ct. 811, 84 L.Ed. 1129 (1940))).

2. The District Court’s RAND Jury Instruction

¹³³ Because Ericsson was obligated to license the patents at issue on RAND terms, D-Link asked the district court to instruct the jury on that RAND obligation. Among other things, D-Link requested that the district court instruct the jury regarding the dangers of patent hold-up and royalty stacking in RAND-related contexts. Rather than adopt the language D-Link proposed, the district court granted D-Link’s request only in part. The court added a sixteenth factor to the 15 *Georgia-Pacific* factors on which it instructed the jury, telling the jury that it “may consider ... Ericsson’s obligation to license its technology on RAND terms.” J.A. 226. After the jury returned its infringement verdict and assigned damages, the district court denied D-Link’s motions for JMOL and a new trial based on its failure to provide more detailed instructions on RAND issues.

On appeal, D-link argues that enforcing RAND commitments is critical to preserving the benefits of standards and must be considered in any damages award. According to D-Link, the district court reversibly erred by giving the jury the customary *Georgia-Pacific* factors because many of those either are not applicable, or may be misleading, in the RAND context. D-Link further contends that the district court erred by refusing to instruct the jury to consider patent hold-up and royalty stacking.

Ericsson responds that the district court did not err in refusing to instruct the jury about patent hold-up and royalty stacking because the *Georgia-Pacific* factors already encompassed these concerns, and to the extent they did not, the inclusion of a “sixteenth” factor referring to Ericsson’s RAND obligations was sufficient. According to Ericsson, a jury instruction regarding patent hold-up or royalty stacking would have been inappropriate because D-Link failed to present any evidence regarding either patent hold-up or royalty stacking to the jury. We agree with both D-Link and Ericsson, to some extent.

This is an issue of first impression for us. To our knowledge, only three other courts have considered the issue of appropriate RAND royalty rates—all district courts. *See Realtek Semiconductor, Corp. v. LSI Corp.*, No. C-12-3451, 2014 WL 2738216, at *5–6 (N.D.Cal. June 16, 2014); *In re Innovatio IP Ventures, LLC Patent Litig.*, No. 11 C 9308, 2013 WL 5593609 (N.D.Ill. Oct. 3, 2013); *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217 (W.D.Wash. Apr. 25, 2013).⁶

*1230 a. The district court’s use of the *Georgia–Pacific* factors

Although we have never described the *Georgia–Pacific* factors as a talisman for royalty rate calculations, district courts regularly turn to this 15–factor list when fashioning their jury instructions. Indeed, courts often parrot all 15 factors to the jury, even if some of those factors clearly are not relevant to the case at hand. And, often, damages experts resort to the factors to justify urging an increase or a decrease in a royalty calculation, with little explanation as to why they do so, and little reference to the facts of record. See *WhitServe, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 31–32 (Fed.Cir.2012) (“We do not require that witnesses use any or all of the *Georgia–Pacific* factors when testifying about damages in patent cases. If they choose to use them, however, reciting each factor and making a conclusory remark about its impact on the damages calculation before moving on does no more than tell the jury what factors a damages analysis could take into consideration.”). In this case, the district court included all 15 *Georgia–Pacific* factors in its damages instruction—over objection—without considering their relevance to the record created at trial.

In a case involving RAND-encumbered patents, many of the *Georgia–Pacific* factors simply are not relevant; many are even contrary to RAND principles. See Br. of Amici Curiae American Antitrust Institute (“AAI Br.”) 11–20 (arguing that the *Georgia–Pacific* factors are not appropriate for determining RAND royalties). For example, factor 4 is “[t]he licensor’s established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.” *Georgia–Pacific*, 318 F.Supp. at 1120. Because of Ericsson’s RAND commitment, however, it cannot have that kind of policy for maintaining a patent monopoly. See *Microsoft*, 2013 WL 2111217, at *18. Likewise, factor 5—“[t]he commercial relationship *1231 between the licensor and licensee”—is irrelevant because Ericsson must offer licenses at a *non-discriminatory* rate. *Georgia–Pacific*, 318 F.Supp. at 1120; see *Microsoft*, 2013 WL 2111217, at *18.

¹³⁴ Several other *Georgia–Pacific* factors would at least need to be adjusted for RAND-encumbered patents—indeed, for SEP patents generally. For example, factor 8 accounts for an invention’s “current popularity,” which is likely inflated because a standard requires the use of the technology. *Georgia–Pacific*, 318 F.Supp. at 1120. Factor 9—“utility and advantages of the patented invention over the old modes or devices,” J.A. 225—is also skewed for SEPs because the technology is used because it is essential, not necessarily because it is an

improvement over the prior art. Factor 10, moreover, considers the commercial embodiment of the licensor, which is also irrelevant as the standard requires the use of the technology. Other factors may also need to be adapted on a case-by-case basis depending on the technology at issue. Consequently, the trial court must carefully consider the evidence presented in the case when crafting an appropriate jury instruction. In this case, the district court erred by instructing the jury on multiple *Georgia–Pacific* factors that are not relevant, or are misleading, on the record before it, including, at least, factors 4, 5, 8, 9, and 10 of the *Georgia–Pacific* factors.⁷

¹³⁵ Trial courts should also consider the patentee’s actual RAND commitment in crafting the jury instruction. Ericsson agrees that it is under a binding obligation to license the patents at issue on the RAND terms it pledged to the IEEE. The district court should have turned to the actual RAND commitment at issue to determine how to instruct the jury. In this case, Ericsson promised that it would “grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.” J.A. 17253. Rather than instruct the jury to consider “Ericsson’s obligation to license its technology on RAND terms,” J.A. 226, the trial court should have instructed the jury about Ericsson’s *actual* RAND promises. “RAND terms” vary from case to case. A RAND commitment limits the market value to (what the patent owner can reasonably charge for use of) the patented technology. The court therefore must inform the jury what commitments have been made and of its obligation (not just option) to take those commitments into account when determining a royalty award.

To be clear, we do not hold that there is a modified version of the *Georgia–Pacific* factors that should be used for all RAND-encumbered patents. Indeed, to the extent D–Link argues that the trial court was required to give instructions that mirrored the analysis in *Innovatio* or *Microsoft*, we specifically reject that argument. See Oral Argument at 16:16, *Ericsson, Inc. v. D–Link Sys., Inc.*, 2013–1625, available at <http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2013–1625.mp3> (“Our argument was the following on RAND and it doesn’t rely upon any of the evidence that went in during the two hour jury wave portion. It relies upon the request for instructions, basically building on the *Innovatio* decision by Judge Holderman and the *Microsoft* decision by *1232 Judge Robart....”).⁸ We believe it unwise to create a new set of *Georgia–Pacific*–like factors for all cases involving RAND-encumbered patents. Although we recognize the desire for bright line

rules and the need for district courts to start somewhere, courts must consider the facts of record when instructing the jury and should avoid rote reference to any particular damages formula.

b. Apportionment analysis for SEPs

^[36] ^[37] As with all patents, the royalty rate for SEPs must be apportioned to the value of the patented invention. *Garretson*, 111 U.S. at 121, 4 S.Ct. 291; see also *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 617, 32 S.Ct. 691, 56 L.Ed. 1222 (1912) (“[Plaintiff] was only entitled to recover such part of the commingled profits as was attributable to the use of its invention.”). When dealing with SEPs, there are two special apportionment issues that arise. First, the patented feature must be apportioned from all of the unpatented features reflected in the standard. Second, the patentee’s royalty must be premised on the value of the patented feature, not any value added by the standard’s adoption of the patented technology. These steps are necessary to ensure that the royalty award is based on the incremental value that the patented *invention* adds to the product, not any value added by the standardization of that technology.⁹

Just like modern electronic devices, technological standards include multiple technologies. We know that patents often claim only small portions of multi-component products and we have precedent which covers apportionment of damages in those situations. See, e.g., *Garretson*, 111 U.S. at 121, 4 S.Ct. 291; *Uniloc*, 632 F.3d at 1318; *Lucent*, 580 F.3d at 1336. Similarly, SEPs can, and, often do, claim only limited aspects of the overall standard.

For example, the 802.11 standard encompasses numerous technologies to enable devices to communicate with each other via wireless network connection. This includes, among many other things, technologies on link establishment, security protocols, error control, and flow control. By way of example, the ‘568 patent, at best, only covers the ability of the system to prioritize time-sensitive payloads by informing the system what type of data is in each transmission. This is only a small aspect of the 802.11(n) standard. Indeed, based on the record in this case, it is undisputed that some programs do not even take advantage of this 802.11(n) standard capability. The ‘215 patent, moreover, at best covers the ability to send different feedback response types. Again, based on the undisputed record, some 802.11(n) standard products do not use more than one type of feedback message.

^[38] Just as we apportion damages for a patent that covers a small part of a device, we must also apportion damages for SEPs that cover only a small part of a *1233 standard. In other words, a royalty award for a SEP must be apportioned to the value of the patented invention (or at least to the approximate value thereof), not the value of the standard as a whole. A jury must be instructed accordingly. Our decision does not suggest that all SEPs make up only a small part of the technology in the standard. Indeed, if a patentee can show that his invention makes up “the entire value of the” standard, an apportionment instruction probably would not be appropriate. *Garretson*, 111 U.S. at 121, 4 S.Ct. 291.

^[39] Turning to the value of a patent’s standardization, we conclude that Supreme Court precedent also requires apportionment of the value of the patented technology from the value of its standardization. In *Garretson*, the Supreme Court made clear that, “[w]hen a *patent is for an improvement*, and not for an entirely new machine or contrivance, the patentee must show in what particulars his improvement has *added to the usefulness* of the machine or contrivance. He must separate its results distinctly from those of the other parts, so that the benefits derived from it may be distinctly seen and appreciated.” *Garretson*, 111 U.S. at 121, 4 S.Ct. 291 (emphases added). In other words, the patent holder should only be compensated for the approximate incremental benefit derived from his invention.

^[40] This is particularly true for SEPs. When a technology is incorporated into a standard, it is typically chosen from among different options. Once incorporated and widely adopted, that technology is not always used because it is the best or the only option; it is used because its use is necessary to comply with the standard. In other words, widespread adoption of standard essential technology is not entirely indicative of the added usefulness of an innovation over the prior art. *Id.* This is not meant to imply that SEPs never claim valuable technological contributions. We merely hold that the royalty for SEPs should reflect the approximate value of that technological contribution, not the value of its widespread adoption due to standardization.

Because SEP holders should only be compensated for the added benefit of their inventions, the jury must be told to differentiate the added benefit from any value the innovation gains because it has become standard essential. Although the jury, as the fact finder, should determine the appropriate value for that added benefit and may do so with some level of imprecision, we conclude that they must be told to consider the difference between the added

value of the technological invention and the added value of that invention's standardization. Indeed, Ericsson admitted at oral argument that the value of standardization should not be incorporated into the royalty award. Oral Argument at 55:25 ("Q: You agree that it is error to allow [the jury] to include the value from the standardization? A: In the rate, not in the base.... The rate must be attributable to the value of the invention."). By way of example, the *Realtek* court instructed the jury that it "should not consider LSI's advantage resulting from the standard's adoption, if any. However, you may consider any advantage resulting from the technology's superiority." *Realtek Jury Instruction*, ECF No. 267, 21.

c. Instructions on patent hold-up and royalty stacking

D-Link argues that the jury should have been instructed on the concepts of patent hold-up and royalty stacking because it argues that the jury should know the mischief that can occur if RAND royalty rates are set too high. Many of the amicus briefs echo D-Link's concerns. See AAI *1234 Br. 4-9; Br. of Amici Curiae Cisco Sys., Inc., et al. ("Cisco Br.") 14-19; Br. of Amici Curiae Broadcom Corp., et al. ("Broadcom Br.") 10-14.

^[41] In deciding whether to instruct the jury on patent hold-up and royalty stacking, again, we emphasize that the district court must consider the evidence on the record before it. The district court need not instruct the jury on hold-up or stacking unless the accused infringer presents actual evidence of hold-up or stacking. Certainly something more than a general argument that these phenomena are possibilities is necessary. Indeed, "a court should not instruct on a proposition of law about which there is no competent evidence." See *Nestier Corp. v. Menasha Corp.-Lewisystems Div.*, 739 F.2d 1576, 1579-80 (Fed.Cir.1984); see also Br. of Amici Curiae Nokia Corp., et al. ("Nokia Br.") 9-12. Depending on the record, reference to such potential dangers may be neither necessary nor appropriate.

In this case, we agree with the district court that D-Link failed to provide evidence of patent hold-up and royalty stacking sufficient to warrant a jury instruction. *JMOL Order*, 2013 WL 4046225, at *25-26 ("Defendants failed to present any evidence of *actual* hold-up or royalty stacking." (emphasis in original)). If D-Link had provided evidence that Ericsson started requesting higher royalty rates after the adoption of the 802.11(n) standard, the court could have addressed it by instructing the jury on patent hold-up or, perhaps, setting the hypothetical negotiation date before the adoption of the standard.¹⁰

D-Link, however, failed to provide any such evidence. Absent evidence that Ericsson used its SEPs to demand higher royalties from standard-compliant companies, we see no error in the district court's refusal to instruct the jury on patent hold-up or to adjust the instructions expressly to take patent hold-up into account. Indeed, as noted above, the court found that Ericsson complied with its RAND obligations and *did not* demand an unreasonable royalty for use of its technology.

A jury, moreover, need not be instructed regarding royalty stacking unless there is actual evidence of stacking. The mere fact that thousands of patents are declared to be essential to a standard does not mean that a standard-compliant company will necessarily have to pay a royalty to each SEP holder. In this case, D-Link's expert "never even attempted to determine the actual amount of royalties Defendants are currently paying for 802.11 patents." *JMOL Order*, 2013 WL 4046225, at *18. In other words, D-Link failed to come forward with any evidence of other licenses it has taken on Wi-Fi essential patents or royalty demands on its Wi-Fi enabled products. Because D-Link failed to provide any evidence of actual royalty stacking, the district court properly refused to instruct the jury on royalty stacking.

We therefore hold that the district court did not err by refusing to instruct the jury on the general concepts of patent hold-up and royalty stacking.

* * *

*1235 ^[42] In sum, we hold that, in all cases, a district court must instruct the jury *only* on factors that are relevant to the specific case at issue. There is no *Georgia-Pacific*-like list of factors that district courts can parrot for every case involving RAND-encumbered patents. The court should instruct the jury on the actual RAND commitment at issue and must be cautious not to instruct the jury on any factors that are *not* relevant to the record developed at trial. We further hold that district courts must make clear to the jury that any royalty award must be based on the incremental value of the invention, not the value of the standard as a whole or any increased value the patented feature gains from its inclusion in the standard. We also conclude that, if an accused infringer wants an instruction on patent hold-up and royalty stacking, it must provide evidence on the record of patent hold-up and royalty stacking in relation to both the RAND commitment at issue and the specific technology referenced therein.

As explained above, in this case, we find that the district court committed legal error in its jury instruction by: (1)

failing to instruct the jury adequately regarding Ericsson's actual RAND commitment; (2) failing to instruct the jury that any royalty for the patented technology must be apportioned from the value of the standard as a whole; and (3) failing to instruct the jury that the RAND royalty rate must be based on the value of the invention, not any value added by the standardization of that invention—while instructing the jury to consider irrelevant *Georgia-Pacific* factors. We think that these errors collectively constitute prejudicial error. See *Eviron Prods., Inc. v. Furon Co.*, 215 F.3d 1261, 1265 (Fed.Cir.2000) (“Prejudicial error is an error that, in the words of the Federal Rules of Civil Procedure, ‘appears to the court inconsistent with substantial justice.’” (quoting Fed.R.Civ.P. 61)). We therefore vacate the jury's damages award and remand for further proceedings consistent with this opinion. On remand, the court should also be careful to assure that the jury is properly instructed on the apportionment principles laid out in *Garretson* and on the proper evidentiary value of licenses tied to the entire value of a multi-component product. Because we vacate the jury's damages award, moreover, we also vacate the court's ongoing royalty award.

C. The Dell Agency Issue

[43] Finally, Dell argues that the district court erred by granting summary judgment on Dell's claim that it was licensed under the MPA to practice the claims asserted against it. Because the MPA says it is governed by New York law, both Ericsson and Dell agree that New York agency law governs. The parties further agreed that, in order for Dell to have a license to practice the patents at issue based on the MPA, LM Ericsson, the parent company, must have been acting as an agent of its subsidiary, Ericsson AB, when it filed this lawsuit. The district court granted summary judgment because it found that this agency relationship did not exist as a matter of law.

The Fifth Circuit reviews summary judgment decisions de novo. *United States v. Caremark, Inc.*, 634 F.3d 808, 814 (5th Cir.2011). Summary judgment is appropriate if, in viewing the evidence in a light most favorable to the non-moving party, the court finds that “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed.R.Civ.P. 56(a).

[44] [45] [46] [47] The existence of an agency relationship—where one party has legal authority to act for another—is a mixed question of law and fact. See

*Cabrera v. *1236 Jakobovitz*, 24 F.3d 372, 385–86 (2d Cir.1994) (applying New York law). In order to establish an agency relationship, the facts must show that: (1) the principal manifested intent to grant authority to the agent, and (2) the agent agreed or consented to the agency relationship. See *Commercial Union Ins. Co. v. Alitalia Airlines, S.p.A.*, 347 F.3d 448, 462 (2d Cir.2003) (citations omitted) (applying New York law). Further, the principal must retain control and direction over key aspects of the agent's actions. See *In re Shulman Transport Enters., Inc.*, 744 F.2d 293, 295 (2d Cir.1984) (applying New York law); *Meese v. Miller*, 79 A.D.2d 237, 436 N.Y.S.2d 496, 499 (N.Y.App.Div.1981). A principal cannot, moreover, grant authority to an agent if the principal does not itself possess the power granted. See *Mouawad Nat'l Co. v. Lazare Kaplan Int'l Inc.*, 476 F.Supp.2d 414, 423 (S.D.N.Y.2007) (applying New York Law).

On appeal, Dell argues that it presented sufficient evidence that Ericsson AB directed LM Ericsson to sue Dell, pointing to the fact that, even though the patents were assigned to LM Ericsson, the inventors of the patents were primarily Ericsson AB employees. Dell further contends that it presented evidence that Ericsson AB maintained control over key aspects of this litigation. Finally, Dell asserts that the district court improperly made factual inferences regarding the strength of Dell's arguments in favor of Ericsson, pointing to an alleged decision to sue Dell made by an Ericsson AB employee.

Ericsson responds that there is no material dispute of fact that LM Ericsson—the parent company and patent owner—is not an agent of Ericsson AB—the subsidiary company and signatory to the MPA. Ericsson asserts that Ericsson AB never had authority to sue Dell for infringement of these patents on its own. Ericsson insists that this means the alleged principal never had the authority it allegedly granted. According to Ericsson, even if an Ericsson AB employee helped make the decision to file the law suit, there is no evidence that he had the authority to file those suits.

We agree with Ericsson that Dell has failed to raise genuine issues of material fact regarding whether LM Ericsson is an agent of Ericsson AB. It is undisputed that LM Ericsson is the owner of the patents in suit. As the owner, it is LM Ericsson that has the authority to sue for infringement; no other entity need grant it the authority to sue. See 35 U.S.C. § 281 (“A patentee shall have remedy by civil action for infringement of his patent.”). Even assuming that an Ericsson AB employee suggested suing Dell for infringement, LM Ericsson indisputably had that authority prior to any suggestion. See *Mouawad*, 476

F.Supp.2d at 423 (“[T]he principal itself must possess the power that it is attempting to confer on the agent.” (citing 3 Am.Jur.2d Agency § 9 (2014))). Because LM Ericsson is not a signatory to the MPA, any license Dell might have thereunder does not excuse any acts of infringement involving the patents in suit.

For the foregoing reasons, we affirm the district court’s conclusion that Dell does not, as a matter of law, have a license to practice the patents at issue under the MPA.

III. Conclusion

For the foregoing reasons, we affirm the infringement findings relating to the ‘568 and ‘215 patents, but reverse the infringement finding with respect to the ‘625 patent. We also affirm the jury’s finding that the ‘625 patent was not invalid over the Petras reference. We vacate the jury’s damages award and the ongoing royalty award and remand for proceedings consistent with this decision. With respect to *1237 Dell’s appeal, we affirm the district court’s grant of summary judgment to Ericsson on Dell’s license defense.

Accordingly, we affirm-in-part, reverse-in-part, vacate-in-part, and remand for further proceedings.

AFFIRMED IN PART, REVERSED IN PART, VACATED IN PART, AND REMANDED

Opinion dissenting in part filed by Circuit Judge TARANTO.

TARANTO, Circuit Judge, dissenting-in-part.

I join all of the court’s opinion except part II.A.2, which upholds the judgment of infringement of the ‘215 patent. I conclude that the district court incorrectly construed the ‘215 patent’s claim language pertaining to the invention’s message field. And there is no infringement under the construction that I think is correct. On this one issue, I respectfully dissent.

The dispute over the proper construction of claim 1 of the ‘215 patent involves two related issues. The first is

whether the phrase “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” requires that the device “select” a message type depending on the received data—which requires that it have at least two message-type options it can select from. The second is whether the message field must be constructed specifically to minimize either the size or the quantity of feedback responses. It is undisputed that if the claims are read to require either selection or minimization, the accused devices do not infringe.

Selecting. I begin with the claim language. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed.Cir.2005) (en banc). Claim 1 requires the act of “constructing a message field” to be “responsive to the receiving step”—that is, responsive to “receiving said plurality of first data units.” ‘215 Patent, col. 10, lines 23–26. At a minimum, the “responsive” language allows, indeed suggests, selection or choice about what to include in the constructed message field, based on potentially varying characteristics of the data received. And the specification and Ericsson’s own assertions during litigation not only confirm the requirement of choice but make clear what the choice is: it is a choice from a range of possible message types.

Claims must be interpreted in the context of the patent as a whole, and the specification is central to performing the interpretive task. See *Phillips*, 415 F.3d at 1321 (“[T]he specification is the single best guide to the meaning of a disputed term ...”) (internal quotation omitted). The specification of the ‘215 patent pervasively describes what Ericsson had invented as optimizing feedback responses through the receiver’s choice among feedback-response message types—specifically to minimize the size of the responses and thereby increase efficiency. Even without regard to the more specific objective of minimizing, the receiver’s optimizing task requires selecting.

Thus, the abstract describes constructing feedback responses “so as to optimize performance in accordance with certain criteria,” with those criteria consisting of minimizing size and maximizing efficiency of the feedback responses. ‘215 Patent, abstract. The summary of the invention similarly teaches that the receiver constructs feedback response data units “so as to optimize system performance,” with the optimization consisting of “minimizing [] size” while “maximizing the number of [sequence numbers]” included in a smaller-sized data unit. *Id.* col. 4, lines 48–53. Neither of the two stated optimization criteria may be met unless the receiver *1238 makes choices among a plurality of message types. Further, the specification describes the patent’s advance over the prior art as reducing the “waste of bandwidth”

and “unnecessary overhead” resulting from Automatic Repeat Request (ARQ) protocols that are “static in construction,” *i.e.*, not varying as a function of the incoming data. *Id.* col. 3, lines 46–47. And the four technical advantages specifically enumerated—saving bandwidth, minimizing overhead, increasing system capacity, and minimizing the number of feedback responses—derive from the invention’s optimizing of feedback responses. *Id.* col. 4, lines 54–62. The specification nowhere discloses any contrary embodiment.

The claim language thus suggests a requirement of selecting, and the specification pervasively indicates that what is required is selecting among message types. Construing the claim to require receiver selecting is “the correct construction” because it “stays true to the claim language and most naturally aligns with the patent’s description of the invention.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed.Cir.1998), adopted by *Phillips*, 415 F.3d at 1316.

Ericsson’s own statements about the invention confirm that the receiver’s choosing among message types, in response to incoming data, is essential. During claim construction, in an apparent effort to prevent the additional “minimizing” requirement from being read into the claim, Ericsson conceded—indeed, repeatedly insisted in clear terms—that selecting among message types by the receiver was a required element of the invention. See J.A. 6473 (“[T]he invention is to build in choice at the receiver side of a type of feedback response.”); J.A. 6475 (Given “the advantage ... gained from incorporating this message field that allows a choice, does the advantage of minimizing the size or number of feedback responses necessarily have to be read in when it doesn’t appear in the claim element[?]”); J.A. 6478 (“[T]he invention is, as expressed in the claims, giving the receiver a choice and constructing a message field that has a type identifier so it can express what it has chosen to use as a format for communicating the packets that have been dropped.”).

For those reasons, I conclude, the method of claim 1 of the ‘215 patent claim requires that the receiver engage in selection among message types in response to receipt of data. It is undisputed that the accused devices do not do so. Ericsson did not argue otherwise in its brief, and it conceded the point at oral argument, stating: “[I]f the court concludes that the receiver must make a choice, [the ‘215 patent is] not infringed.” Oral Argument at 34:45–35:00, *Ericsson, Inc. v. D-Link Sys., Inc.*, No. 2013–1625.

Minimizing. Claim 1 of the ‘215 patent also requires

“minimizing feedback responses,” as expressly stated in the preamble. ‘215 Patent, col. 10, line 19. The presence of that language indirectly reinforces the requirement of selection: to minimize, choices must be made. But it also adds to the selection requirement and independently requires a judgment of non-infringement.

The “minimizing” language is a claim limitation unless the fact that it appears in the preamble makes it non-limiting, as sometimes is true for preamble language. See *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed.Cir.2002). For claim 1, however, the preamble must be limiting, as only the preamble gives content to what the constructed message field is. See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1306 (Fed.Cir.1999) (preamble is limiting when *1239 necessary to “give life, meaning, and vitality” to the claim) (internal quotation and citation omitted). The claim recites constructing a “message field,” but only in the preamble does the claim indicate that the message field is to be understood as a “feedback response[] in an ARQ protocol.” ‘215 Patent, col. 10, lines 19–20, 24–27. The phrase “feedback response,” appearing nowhere but the preamble, is crucial to making sense of the rest of the claim. See *Griffin v. Bertina*, 285 F.3d 1029, 1033 (Fed.Cir.2002) (holding as limiting a method claim’s preamble reciting “diagnosing an increased risk for thrombosis,” where claim covering nucleic-acid tests performed on a “test subject” was meaningless without understanding that “[d]iagnosis is ... the essence of [the] invention”).

The construction proposed by Ericsson and adopted by the district court implicitly recognizes that the preamble is limiting. The adopted construction of the “responsive” step requires “including a field that identifies the *message type of the feedback response message*.” *Ericsson, Inc. v. D-Link Corp.*, No. 6:10–cv–473, 2013 WL 949378, at *5 (E.D.Tex. Mar. 8, 2013) (emphasis added). The phrase “feedback response,” in the adopted claim construction, comes from nowhere in the claim except the preamble. Where the district court erred was in parsing the preamble to include only one phrase as limiting—“feedback responses”—while excluding the word “minimizing” that appears immediately before the phrase “feedback responses.” I see no sound basis for that distinction.

Indeed, the specification, as described above, shows that the invention is centrally about minimizing such responses—which can be done either by minimizing the size of individual response messages (status protocol data units) or by minimizing the number of such messages by packing more information, *i.e.*, sequence numbers, into messages of fixed size. ‘215 Patent, col. 4, lines 49–54

(summary of the invention identifying precisely those two ways of “optimiz[ing] system performance”). Ericsson’s only specific argument against the “minimizing” construction is to note the two ways of minimizing the specification identifies. Ericsson Br. at 39. But that is not an argument against D-Link’s proposed construction—which covers both of those ways of minimizing. J.A. 5084 (“selected from multiple available feedback responses in order to minimize the size or number of feedback responses”). I conclude, therefore, that it was error for the district court to reject D-Link’s “minimizing” claim construction.

It is undisputed that if claim 1 requires “minimizing,” the accused devices do not infringe. Ericsson never argues otherwise in its brief. Ericsson Br. at 38–40. This is an additional ground for reversing the judgment of infringement of the ‘215 patent, and requiring judgment of non-infringement instead.

All Citations


773 F.3d 1201, 113 U.S.P.Q.2d 1001

Footnotes

- 1 A single standard will often emerge even if initially there are competing standards. For example, the Blu-ray standard won out over the HD DVD standard in the high-definition optical disc war. Martin Fackler, *Toshiba Acknowledges Defeat as Blu-ray Wins Format Battle*, N.Y. Times, February 20, 2008, at C1.
- 2 The 802.11 standard is not a static set of requirements. Indeed, it has been updated multiple times. When the 802.11 standard is updated, it is given a letter to indicate the version of the standard, e.g., 802.11(g). Devices are typically compliant with a specific version of the 802.11 standard, indicated by the letter. This case specifically addresses the 802.11(n) standard.
- 3 At the bench trial, D-Link asked the district court to: (1) determine an appropriate RAND rate, (2) find that Ericsson breached its RAND agreement by refusing to license Intel, and (3) find that Ericsson is not entitled to an injunction. D-Link concedes that it proffered evidence to the trial court regarding Ericsson’s RAND obligations that it did not offer to the jury, despite its argument to the jury that any royalty rate chosen must be reflective of those RAND obligations. It is unclear why D-Link made this choice, particularly because D-Link refused to be bound by any court-determined royalty rate. Once the jury had set the RAND rate, the judge rejected D-Link’s invitation to separately determine the award at the bench trial. D-Link does not appeal that ruling, arguing only that the jury was not adequately instructed about Ericsson’s RAND obligations, not that the court should have made that decision.
- 4 Because D-Link does not challenge the methodology used by Ericsson’s damages expert, we need not consider the propriety of his apportionment analysis. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).
- 5 While factors 9 and 13 of the *Georgia-Pacific* factors allude to apportionment concepts, we believe a separate instruction culled from *Garretson* would be preferable in future cases.
- 6 The issue in *Microsoft* was whether Motorola had breached its contractual obligation to offer a RAND license to Microsoft. Because the jury needed to determine whether Motorola’s offer letters were in fact RAND offers, the *Microsoft* court analyzed the facts to find a range of appropriate values. In doing so, the court created a modified set of *Georgia-Pacific* factors to consider when the patents are encumbered by RAND contracts, noting that a number of the unmodified factors do not adequately address the RAND situation. *Microsoft*, 2013 WL 2111217, at *18–20.
In *Innovatio*, the parties asked the district court to calculate the appropriate RAND royalty rate for a group of 802.11 SEPs. The *Innovatio* court largely adopted the methodology used in *Microsoft*, but made a few modifications. *Innovatio*, 2013 WL 5593609, at *6–7. The *Innovatio* court presented the concepts relevant to a RAND rate, including patent hold-up, royalty stacking, and incentivizing inventors to participate in the standard-setting process. The court then explained that, based on these considerations, the royalty rate: (1) must distinguish between the intrinsic value of the technology and the value of the standardization of that technology; (2) take into account what part of the standard the patent actually covers; and (3) must be high enough to ensure that innovators have appropriate incentive to invest in future developments and contribute their inventions to the standard-setting process. *Id.* at *8–12.
In *Realtek*, the district court upheld the jury’s patent infringement damages award in a RAND patent case, explaining that the jury’s award was supported by substantial evidence. *Realtek*, 2014 WL 2738216, at *5–6. The *Realtek* court’s jury instruction informed the jury it “should not consider LSI’s advantage resulting from the standard’s adoption, if any. However, you may consider any advantage resulting from the technology’s superiority.” *Realtek Semiconductor, Corp. v. LSI Corp.* (“*Realtek Jury Instruction*”), No. C-12-3451, ECF No. 267, 21 (N.D.Cal. February 10, 2014). The *Realtek* court further instructed the jury to use a two-step approach to determine the RAND royalty rate: (1) “compar[e] the technical contribution of the two LSI patents to the technical contributions of other patents essential to the standard” and (2) “consider the contribution of the standard as a whole to

the market value of Realtek’s products utilizing the standard.” *Id.* at 23.

- 7 Reference to irrelevant *Georgia-Pacific* factors would not—in most instances—be sufficiently prejudicial to warrant reversal. Here, however, we find the combination of errors in the jury instructions merit the remand we order.
- 8 We express no opinion on the methodologies employed in these district court cases—which may yet come before this court—or on their applications to the facts at issue there. The facts in those cases, and the decision-makers involved, differ from those at issue here. We address only the record before us and what a jury must be instructed when RAND-encumbered patents are at issue and the jury is asked to set a RAND royalty rate.
- 9 As we recognized in *VirnetX*, these tasks are not always easy and would be difficult to do with precision. We accept the fact that the jury should be told of its obligation to approximate the value added by the patented invention and that a degree of uncertainty in setting that value is permissible. *VirnetX*, 767 F.3d at 1328 (citing *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 517 (Fed.Cir.1995)).
- 10 One amicus suggests that the jury always should be told to place the date of the hypothetical negotiation as of the date of the adoption of the standard (if that date predates the infringement) so as to discount any value added by the standardization. *See, e.g.*, AAI Br. 13–16; *see also Microsoft*, 2013 WL 2111217, at *19 (“[T]he parties to a hypothetical negotiation under a RAND commitment would consider alternatives that could have been written into the standard instead of the patented technology.”). D-Link did not request any such instruction, however. Accordingly, we do not address whether shifting the timing of the hypothetical negotiation is either appropriate or necessary.

 KeyCite cautionary citing references available
Judgment Modified by [Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers, Inc.](#), 2nd Cir.(N.Y.), June 15, 1971
318 F.Supp. 1116
United States District Court, S.D. New York.

GEORGIA-PACIFIC CORPORATION,
Plaintiff,
v.
UNITED STATES PLYWOOD
CORPORATION, Defendant.*
Civ. A. No. 99-195.
|
May 28, 1970.

Synopsis

Proceeding to determine amount of reasonable royalty to be paid by infringer to patent holder. The District Court, Tenney, J., held that evidence established that \$50 per thousand square feet of patented striated fir plywood made and sold by infringer represented fair and reasonable royalty that should be paid by infringer to patent holder.

Judgment accordingly.

West Headnotes (12)

[1] Patents → Profits and damages

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)3 Evidence
291k1821 Admissibility
291k1823 Profits and damages
(Formerly 291k312(2))

Some of factors relevant in infringement case to determination of amount of a reasonable royalty for patent license stated. 35 U.S.C.A. § 284.

[308 Cases that cite this headnote](#)

[2] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

That patent had only four years to run at time infringement began did not require that reasonable royalty be minimal for purposes of determining infringement damages, where the patented product was a great commercial success, infringer did not assume any fixed financial obligation, opportunity to engage in sale of product before patent's expiration constituted definite advantage to infringer who intended to market product after expiration, and infringer could get into profitable production of product with only modest investment.

[31 Cases that cite this headnote](#)

[3] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

For very reason that patent holder was unable to prove quantum of its damage from lost profits resulting from infringer's production of patented product, reasonable royalty that infringer would have been required to pay was proper measure of damages. 35 U.S.C.A. § 284.

[8 Cases that cite this headnote](#)

[4] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
 291 VII Patent Infringement
 291 VII (C) Actions
 291 VII (C) 5 Relief
 291k1910 Damages
 291k1914 Reasonable royalty; hypothetical negotiation
 (Formerly 291k319(1))

Statute requiring award adequate to compensate for infringement of patent and no less than reasonable royalty for use made of invention by infringer was intended to afford fair compensation in cases where victimized patentee is unable to prove that he lost a measurable amount of profits as result of the infringement and the statute provides alternative way of recovering general compensatory damages. 35 U.S.C.A. § 284.

[133 Cases that cite this headnote](#)

[5] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
 291 VII Patent Infringement
 291 VII (C) Actions
 291 VII (C) 5 Relief
 291k1910 Damages
 291k1914 Reasonable royalty; hypothetical negotiation
 (Formerly 291k319(1))

In determining amount of reasonable royalty that infringer would have had to pay patent holder, fact that, at time of hypothetical royalty negotiations, infringer would reasonably have expected to derive substantial additional profits from collateral sales of other products sold along with the patented product was significant, in that it had logical tendency to increase amount of reasonable royalty. 35 U.S.C.A. § 284.

[526 Cases that cite this headnote](#)

[6] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
 291 VII Patent Infringement
 291 VII (C) Actions
 291 VII (C) 5 Relief
 291k1910 Damages
 291k1914 Reasonable royalty; hypothetical negotiation
 (Formerly 291k319(1))

Principle of apportionment was not applicable in determining amount of reasonable royalty that infringer would have had to pay to patent holder, where the patent was not for an improvement, the infringement of patented feature was not sold together with unpatented parts and the patent covered a marketable article as an entirety. 35 U.S.C.A. § 284.

[17 Cases that cite this headnote](#)

[7] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
 291 VII Patent Infringement
 291 VII (C) Actions
 291 VII (C) 5 Relief
 291k1910 Damages
 291k1914 Reasonable royalty; hypothetical negotiation
 (Formerly 291k319(1))

Decorative effect of striated fir plywood was not per se a patented element of invention relating to production of such plywood, but where the decorative effect was an inherent, indivisible and inextricable characteristic of the deep and random striations provided for by patent and contributed toward commercial success it must be given weight in determining reasonable royalty that would have been paid by infringer of the patent. 35 U.S.C.A. § 284.

[4 Cases that cite this headnote](#)

[8] **Patents** — Elements, measure, and amount

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)5 Relief
291k1910 Damages
291k1912 Elements, measure, and amount
(Formerly 291k319(1))

In assessing probative value of royalty rate offered by infringer to prove rate lower than that claimed by patentee, court may not uncritically accept that numerical evidence but must consider economic ambience of that statistic, since special circumstances may explain why that particular rate was depressed or lower than others. 35 U.S.C.A. § 284.

[42 Cases that cite this headnote](#)

[9] **Patents** — Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

District judge in determining true measure of reasonable royalty in patent infringement case should not consider a diminished royalty rate which represents an amount that patentee may have been compelled to accept in individual cases by disrepute of his patent and open defiance of his rights. 35 U.S.C.A. § 284.

[127 Cases that cite this headnote](#)

[10] **Patents** — Profits and damages

291 Patents
291 VII Patent Infringement
291 VII(C) Actions

291 VII(C)3 Evidence
291k1825 Weight and Sufficiency
291k1834 Profits and damages
(Formerly 291k312(10), 291k312(3))

Evidence established that \$50 per thousand square feet of patented striated fir plywood made and sold by infringer represented fair and reasonable royalty that should be paid by infringer to patent holder. 35 U.S.C.A. § 284.

[10 Cases that cite this headnote](#)

[11] **Patents** — Interest

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)5 Relief
291k1920 Interest
291k1921 In general
(Formerly 291k319(4))

Patent infringer was required to pay interest computed from date of last infringement to date of payment of award at rate of 6% per annum.

[12] **Patents** — In general; utility

291 Patents
291 X Patents Enumerated
291k2091 In general; utility
(Formerly 291k328(2))

US Patent 2,286,068. Cited.

Attorneys and Law Firms

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Opinion

OPINION

TENNEY, District Judge.

By opinion dated October 26, 1956, entered in an action by Georgia-Pacific Corporation (hereinafter referred to as 'GP') for a declaratory judgment of invalidity and non-infringement of three patents held by United States Plywood Corporation (hereinafter referred to as 'USP') and upon a counterclaim by USP for patent infringement and unfair competition, my late brother Judge Herlands found USP's three patents (one Deskey and two Bailey patents) invalid for lack of invention, not infringed by GP's product and further, that there was no proof that GP engaged in acts of unfair competition. 148 F.Supp. 846 (S.D.N.Y.1956). The Court of Appeals reversed and remanded in 1958, holding that Claim 1 of USP's Deskey Patent No. 2,286,068 covering 'Weldtex' striated fir plywood valid and infringed by GP. 258 F.2d 124 (2d Cir.), cert. denied, 358 U.S. 884, 79 S.Ct. 124, 3 L.Ed.2d 112 (1958).

Following the decision of the Court of Appeals, the case was referred to a special master to determine the amount of damages to be awarded to USP under 35 U.S.C. § 284 (1952),¹ which provides for 'damages adequate to compensate for the infringement.' The master, computing damages upon the basis of GP's profits derived from the sale of the infringing article,² awarded \$685, *1118 837.00 to USP. Judge Herlands, on exception to the Master's Report, concluded that under the instant circumstances and controlling statute GP's profits did not constitute the proper measure of recovery, and that the award to USP should have been computed on the basis of a reasonable royalty. 243 F.Supp. 500 (S.D.N.Y.1965).

Evidence relating to the issue of the amount of reasonable royalty to be paid by GP to USP was presented to Judge Herlands on June 8 and October 2, 3 and 4, 1967, November 12 and 20, 1968, April 30, May 19-22, and June 23-24, 1969. During the course of these hearings, GP's Exhs. 1-38 and USP's Exhs. 1-47, 50, 53-56, 59-68 were received in evidence. Briefs were filed by both parties herein on September 22 and 23, 1966, November 28, 1966, January 22, 1968, and July 22, 1969 (proposed findings of fact and conclusions of law having been

submitted with the briefs of November 28, 1966 and July 22, 1969).

After having viewed the demeanor of witnesses and examined the transcript, briefs, Master's Report (hereinafter referred to as 'MR'), and applicable authority with a degree of care characterized by his judicial career, Judge Herlands died on August 28, 1969 without having filed a formal opinion on this issue. However, at the time of his death Judge Herlands had substantially completed a draft of his opinion.

Thereafter, on October 9, 1969, Chief Judge Sugarman referred this action to me for all purposes. On the basis of a conference held on December 16, 1969, the parties have stipulated that this cause be submitted for the purpose of determining the amount of the reasonable royalty upon the proceedings and briefs previously referred to herein, 'it being specifically understood and agreed between the parties hereto that (the Court) shall have the full and unlimited right to use or not to use all or any part of said draft of opinion, notes and memoranda, with or without acknowledgment *1119 of its source, as though the same were a part of the record made herein.'³

Based upon this stipulation, and after a careful review of the entire record, the Court has accepted and adopted, with minor amendment, the reasoned opinion of Judge Herlands, which follows.⁴

While the parties agree upon the doctrinal criteria of a reasonable royalty, they differ sharply in their application of those principles to the hard specifics of the evidence. The extreme divergence of the parties is reflected in the difference between GP's submission that the reasonable royalty herein should be fixed at a figure somewhere between a dollar and one-half to three dollars per thousand square feet and USP's claim that the minimum reasonable royalty should be the rate of fifty dollars per thousand square feet.

*1120 ^[1] A comprehensive list of evidentiary facts relevant, in general, to the determination of the amount of a reasonable royalty for a patent license may be drawn from a conspectus of the leading cases. The following are some of the factors mutatis mutandis seemingly more pertinent to the issue herein:

1. The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.
2. The rates paid by the licensee for the use of other patents comparable to the patent in suit.
3. The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms

of territory or with respect to whom the manufactured product may be sold.

4. The licensor's established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.

5. The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.

6. The effect of selling the patented specialty in promoting sales of other products of the licensee; that existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convolved sales.

7. The duration of the patent and the term of the license.

8. The established profitability of the product made under the patent; its commercial success; and its current popularity.

9. The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.

10. The nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.

11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.

12. The portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.

13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.

14. The opinion testimony of qualified experts.

15. The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee— who

desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention— would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

The drawing of proper conclusions from conflicting evidence concerning the amount of a reasonable royalty has been said to call 'for the exercise of judicial discretion by the District Court.' *General Motors Corp. v. Dailey*, 93 F.2d 938, 942 (6th Cir. 1937). Both sides agree that this Court has a broad range of judgment in evaluating the relevant factors.

In the present case there is a multiplicity of inter-penetrating factors bearing upon the amount of a reasonable royalty. But there is no formula by which these factors can be rated precisely in the order of their relative importance or by *1121 which their economic significance can be automatically transduced into their pecuniary equivalent. In discharging its responsibility as fact finder, the Court has attempted to exercise a discriminating judgment reflecting its ultimate appraisal of all pertinent factors in the context of the credible evidence.

The parties agree that there was no 'established' royalty for USP's Weldtex or GP striated. Consequently, it is necessary to resort to a broad spectrum of other evidentiary facts probative of a 'reasonable' royalty.

Two of the earlier and typical cases relied upon by both parties are *Dowagiac Mfg. Co. v. Minnesota Moline Plow Co.*, 235 U.S. 641, 35 S.Ct. 221, 59 L.Ed. 398 (1915) and *United States Frumentum Co. v. Lauhoff*, 216 F. 610 (6th Cir. 1914). In *Dowagiac Mfg. Co.*, *supra*, 235 U.S. at 648, 35 S.Ct. at 224, the Supreme Court said that, where a patentee could not prove lost profits, infringer's profits or an established royalty, the patentee could 'show the value by proving what would have been a reasonable royalty, considering the nature of the invention, its utility and advantages, and the extent of the use involved.' In *United States Frumentum Co.*, *supra*, 216 F. at 617, the Court referred to the following elements as relevant to the determination of a reasonable royalty: the nature of plaintiff's patent property; the extent to which defendant took it; and its utility and commercial value as evidenced by its advantages over other devices, by the extent of its use, and by the profits and savings that could be made upon its sale or adoption.

The parties rely upon the traditional array of facts probative of a reasonable royalty. But, in addition, USP places heavy reliance upon a later formulation called 'the

willing buyer and willing seller' rule.

The rule is pronounced in *Horvath v. McCord Radiator & Mfg. Co.*, 100 F.2d 326, 335 (6th Cir. 1938), cert. denied, *Carrier Engineering Corporation v. Horvath*, 308 U.S. 581, 60 S.Ct. 101, 84 L.Ed. 486, rehearing denied, 308 U.S. 636, 60 S.Ct. 171, 84 L.Ed. 529 (1939), in these terms:

'In fixing damages on a royalty basis against an infringer, the sum allowed should be reasonable and that which would be accepted by a prudent licensee who wished to obtain a license but was not so compelled and a prudent patentee, who wished to grant a license but was not so compelled.'

A variant phrasing set forth in *Faulkner v. Gibbs*, 199 F.2d 635, 639 (9th Cir. 1952) reads:

'The primary inquiry, often complicated by secondary ones, is what the parties would have agreed upon, if both were reasonably trying to reach an agreement.'

The rule is more a statement of approach than a tool of analysis. It requires consideration not only of the amount that a willing licensee would have paid for the patent license but also of the amount that a willing licensor would have accepted. What a willing licensor and a willing licensee would have agreed upon in a suppositious negotiation for a reasonable royalty would entail consideration of the specific factors previously mentioned, to the extent of their relevance. Where a willing licensor and a willing licensee are negotiating for a royalty, the hypothetical negotiations would not occur in a vacuum of pure logic. They would involve a market place confrontation of the parties, the outcome of which would depend upon such factors as their relative bargaining strength; the anticipated amount of profits that the prospective licensor reasonably thinks he would lose as a result of licensing the patent as compared to the anticipated royalty income; the anticipated amount of net profits that the prospective licensee reasonably thinks he will make; the commercial past performance of the invention in terms of public acceptance and profits; the market to be tapped; and any other economic factor that normally prudent businessmen would, under similar circumstances, take into consideration in negotiating the hypothetical license.

*1122 As pointed out in an earlier decision herein by this Court (243 F.Supp. at 539), the very definition of a reasonable royalty assumes that, after payment, 'the infringer will be left with a profit.' It is necessary to consider, as an element in determining the amount of the reasonable royalty, the fact that GP would be willing

hypothetically to pay a royalty which would produce 'a reasonable profit' for GP. See *Faulkner v. Gibbs*, 199 F.2d 635, 639 (9th Cir. 1952).

It is evidence, therefore, that the formulation called the willing seller and willing buyer rule represents an attempt to colligate diverse evidentiary facts of potential relevance. In applying the formulation, the Court must take into account the realities of the bargaining table and subject the proofs to a dissective scrutiny.

In order to establish what USP 'would have' demanded and what GP 'would have' agreed to pay at the time of the suppositious negotiations, USP has hypothesized certain economic facts having experiential validity 'as of' the time of the assumed negotiations.

USP's reconstruction is attacked by GP as a distorted fictional playback that trims the facts to fit USP's theory. For example, GP describes the trial testimony of USP's witnesses, Antoville and Heilpern, as:

'insulated from reality by assuming to recapture the mood of 1954 without any such modification as is required by subsequently developed facts. This is the direct result of a basic misconception by plaintiff of the 'willing seller' rule. The entire thrust of the Heilpern-Antoville testimony was to give expression to an opinion of what USP would have asked had there been a 1955 negotiation with GP for a Deskey license.

Testimony of this nature is irrelevant and, if regarded at all, misleading.

The 'willing seller' rule does not contemplate a confrontation between adverse negotiators and the use of their campaign slogans as evidence.

It does contemplate a marshaling of all of the pertinent facts which, like cards dealt face up, are for all to see. And it then contemplates the suppositious meaning of buyer and seller, who are able, on the basis of the over-all round-up of information, to become 'willing' buyers and sellers, at a royalty which will enable the buyer to make and sell at a reasonable profit.'

Referring to the decisions expounding the willing seller rule, GP argues that 'none of these cases has allowed the suppositious deal between buyer and seller to be infected by a guesswork opinion, unembarrassed by a single fact. And the realism of these cases is in stark contrast with the fictional character of the USP approach.'

The Court, having considered GP's critique, finds that USP's presentation is, in decisive respects, rooted in reality. The total record has been sifted to separate the

probative evidence from surmise, speculation, ‘guesswork opinion’, and ‘campaign slogans’. For the most part, where facts have been hypothesized by USP, they are premised on record evidence, direct and circumstantial. This is particularly true with respect to such elements as reasonably anticipated rates of profit, probable volume of sales, normal economic motivations, and the prevailing business outlook, all as of the time of the supposititious negotiations.

Moreover, the Court as taken into account the modifying effect of the facts developed subsequent to 1955 and has assessed them together with all other probative evidence so far as they bear upon the reasonableness of the assumptions and expectations of the parties in their hypothetical negotiations in 1955.

There is some confusion in GP’s analysis arising out of the circumstance that USP was unable to prove before the master the amount of its lost profits as damages. GP argues that the same deficiencies of proof which resulted in the master’s finding— that USP proved the *1123 fact of damage but not the quantum of such damage— similarly vitiate USP’s present effort to use, as one of the primary factors for evaluating a reasonable royalty, the profits that it would have reasonably anticipated it would make at the time when a royalty would have been negotiated hypothetically with G.P. Similarly, GP is in error when it argues that, because this Court rejected the master’s use of GP’s infringing profits as the legal measure of damages, evidence of GP’s reasonably anticipated profits as of 1955 is irrelevant to the present inquiry.

Certain basic statistics are not in dispute. GP’s sales of the infringing striated plywood totalled 15,899,000 square feet and amounted to sales proceeds to GP of \$2,547,393. The period of the infringement was March 1955 through September 1958.

The manufacturing part of the infringement began in February 1955. As pointed out by the Court of Appeals (258 F.2d at 127):

‘The plaintiff, Georgia-Pacific Corporation, first manufactured its accused panels in February 1955 and in March delivered a sample to defendant’s manager in Newark.’

The hypothetical negotiations are, therefore, time-placed in February 1955 and the relevant factors are viewed in that frame of time-reference.

I

USP’S POLICY TO MAINTAIN AND ITS ACTUAL

MAINTENANCE OF A VALUABLE MONOPOLY ON SALES OF STRIATED FIR PLYWOOD IN THE ABSENCE OF GP’S INFRINGEMENT.

USP’s undeviating policy was to maintain its patent monopoly on sales of striated fir plywood in the United States. Its exploitation of the Deskey patent through the sale of Weldtex was extremely successful and profitable. The Court of Appeals characterized the commercial success of Weldtex as a factor of ‘very great significance’. 258 F.2d at 133.

USP manufactured and sold Weldtex in substantial quantities since 1946. From April 30, 1951 to January 31, 1955, the annual average sales of Weldtex was approximately \$6,000,000. During the last six quarter-annual periods before the infringement, extending up to January 31, 1955, sales of Weldtex totalled \$9,325,022, the quarterly average being \$1,554,170, compared with quarterly average sales of \$1,456,605 during the period from April 30, 1951 to January 31, 1955. During the quarter ending April 30, 1955, the Weldtex sales amounted to \$1,601,814.

The February 1955, USP had no reason to anticipate that there would be a significant decline in the demand for Weldtex in the foreseeable future. In fact, no such decline took place for two years subsequent to February 1955.

The commodity most relevant to the subject of USP’s monopoly was striated fir plywood. GP argues that the relevant commodity is ‘decorative plywood’ as a class, of which striated fir plywood (exemplified by USP’s Weldtex) was only one of many; that USP’s monopoly was diluted by the competition of other decorative plywoods with Weldtex; and that this competition in February 1955 was a factor that significantly tended to reduce the royalty for Weldtex that would have been negotiated hypothetically at that time. In fact, GP contends that the competition that Weldtex faced was so keen that only a minimal royalty can be justified.

Noteworthy is the fact that, despite the allegedly fierce competition between Weldtex and other decorative plywoods, GP deliberately decided to duplicate Weldtex notwithstanding the caveat of GP’s own counsel that an expensive infringement suit was inevitable. GP’s calculated infringement of Weldtex is an admission by conduct that it regarded Weldtex as occupying a uniquely favorable position in the market.

In this connection, it is also important to consider that, without a license from USP, GP could not legitimately manufacture striated fir plywood and, on the *1124 other hand, the granting of a license by USP to GP would place

GP in direct and active competition with USP in the United States with respect to striated fir plywood. Obviously, only an adequate royalty would make this proposition palatable to USP.

The separate question— whether there were other competing decorative plywood panels— poses an inquiry into the extent of that competition and its ultimate bearing upon the determination of the amount of a reasonable royalty.

During the period February 1955 to 1958, Weldtex was not confronted with significant competition except that created by GP's infringing striated. Judge Herlands sharply discounts the testimony before the special master (transcript of the proceedings before the special master herein referred to as 'SM') of GP's witnesses Beggs, L. G. Buckley and Elmendorf, in determining the popularity, life cycle and competitive situation with respect to USP's striated fir plywood. Aside from their lesser credibility than USP's witnesses on the point, the questions put to Beggs, Buckley and Elmendorf were not directed to the relevant period 1955 to 1958 or to February-March, 1955, when the infringement commenced and hence the time when the reasonable royalty would have been negotiated. Beggs was questioned about the period '1955 to 1958' (GP Exh. 18, SM 3360-61). L. G. Buckley was asked a question in the then present tense (1960) with respect to 'other wall covering products which are competitive with Weldtex' (GP Exh. 21, SM 3314). The same use of the then present tense was used with respect to Elmendorf, when he was asked about other products competing with Weldtex (GP Exh. 22, SM 3300, 3301). A similar irrelevant time period is reflected in the testimony of Monroe Pollack, then an officer and sales director of USP, when he described the competition 'in 1957 or thereabouts' (GP Exh. 25, SM 389, 415) or 'in about late 1958 or early 1959' (GP Exh. 25, SM 388).

The evidence that, in February 1955, Weldtex was without keen competition is corroborated by admissions from GP's own files relating to times both before and after the hypothetical negotiations. For example, GP's attorney, in a letter dated July 23, 1953, said that Weldtex 'has been without any substantial competition' (USP Exh. 14a, at 1887a). Five years later, on May 13, 1958, a ranking representative of GP (Leonardson) wrote that Weldtex 'is certainly one product on which they (USP) have very little competition' (USP Exh. 6).

While in a generalized sense Weldtex was only one of a number of decorative wall panels that were competitive (e.g., brushed fir plywood, Philippine mahogany plywood and embossed plywood) the Court accepts Mr. Heilpern's testimony that, to determine whether and to what extent

various plywood and similar products were competitive with each other, it is necessary to know their respective price ranges and the respective markets that had been developed for them (Tr. 222-40). The Court is convinced that, in February 1955, the commercial value of Weldtex was not undermined by competition (Tr. 223-30, 234-35, 238, 330-31).

Particularly convincing on the point of the absence of substantial competition is the testimony of Monroe Pollack, USP's vice president in charge of sales from 1950 to 1957 (GP Exh. 25, SM 369, 383-388) which is corroborated by the Antoville testimony (Tr. 349-357) and the striated fir plywood statistics (USP Exh. 1). Pollack testified that Weldtex represented a unique decorative panel 'which, to a large degree, were (was) non-competitive' and that there was no competition in this particular field until late 1958 or early 1959.

The master found and this Court approved the finding, that Weldtex and GP's infringing striated plywood were competitive with each other to a greater degree than with other decorative panels. 243 F.Supp. at 510, 511; MR 105. Competition in the form of imported products was not significant in February *1125 1955. Such competition assumed substantial proportions only in 1957 or thereabouts. Mr. Heilpern's testimony proves that, while there were a number of other competitive decorative wall panels on the market during the period of infringement, they were not substantially significant as competitive items with Weldtex. This is corroborated by the fact that USP was able to maintain the volume of its sales at original prices. Mr. Antoville's credible testimony proves that, in 1955, the other decorative plywoods did not constitute a substantial competitive factor.

The Court reiterates its prior finding that, at the time of GP's infringement, Weldtex was relatively insulated from competition. See 243 F.Supp. at 510, 511.

It follows that, in February 1955, the time of the hypothetical negotiations, the determination of a reasonable royalty would have been strongly influenced by the then dominant market position of Weldtex. While this element cannot be converted into commensurable arithmetical terms, it is a highly significant fact in the mix of factors.

The evidence referred to must be considered in conjunction with USP's policy not to license anyone to sell Weldtex in the United States or in any other area where USP was capable of making its own sales. In the licenses that USP did grant for the manufacture of Weldtex in the United States, USP stipulated that the licensee could sell only to USP or USP's designee.

The master found that USP had the financial and physical capacity to market an additional amount of striated fir plywood equaling 80% Of the amount infringingly sold by GP. While the master and the Court found that USP had possessed that capacity, the master found, and the Court approved the finding, that the proof was insufficient to establish that USP would have in fact manufactured and sold any measurable quantity of Weldtex between February 1955 and September 1958, in addition to the quantities of Weldtex which they did actually manufacture and sell during that period.

What is pertinent for present purposes is that, at the time of the hypothetical negotiations, USP did have the physical and financial capacity to market an additional 12,784,000 square feet of Weldtex between March 1955 and September 1958 and that, when it would have entered into the hypothetical licensing agreement with GP, it was not doing so because it could not have produced additional Weldtex itself.

Next to be considered is the matter of the market demand for Weldtex in or about February 1955 and the then reasonable anticipation as to the continuance of that customer popularity. GP argues that Weldtex had passed its apogee just before GP began its infringing sales of striated plywood. Citing sales statistics, GP claims that Weldtex lost standing in each succeeding year since early 1955.

The more persuasive fact is that, in February 1955, there was no reason to anticipate any significant decline in the foreseeable future in the demand for the striated fir plywood on which USP had a legal monopoly. USP executives in fact anticipated no such decline. Sales of striated fir plywood were still rising in February 1955, and did not fall off significantly until about two years later. During six of the eight quarterly periods following the start of the infringement— up to April 30, 1957—the total combined sales of striated fir plywood by USP and GP exceeded USP's quarterly average over the period April 30, 1951, up to the beginning of the infringement. For the eighth quarter following the commencement of the infringement the combined sales by USP and GP were 88.2% Of USP's pre-infringement average. For the entire four year period following the infringement up to January 31, 1959, the total striated fir plywood sales was more than 80% Of the sales during the four years prior to the infringement.

USP recognizes the abstract proposition that specialty plywood products tend *1126 to go through cycles of popularity. But the record shows that in February, 1955 the popularity of striated fir plywood had not yet begun to decline; that (as the credible testimony of Heilpern and

Antoville indicated) no one familiar with it thought it had; and that no one, least of all GP, considered that its commercial value and future prospects were anything but attractive. The very circumstance that GP decided to manufacture and sell infringing striated fir plywood reflects its sanguine view that this was a profitable item despite the almost certain litigation that would ensue.

The contemporaneous documentation indicates that GP's entrance into the striated fir plywood field met with enthusiastic sales inception; that shortages soon arose; that re-orders for the product were obtained; and that even in 1958 GP's pricing of striated fir plywood was holding up.

The evidence on which GP relies to show that Weldtex had lost its popularity was not focused on or near February 1955 (the time of the hypothetical negotiations) nor on the year 1955. For example, GP's witness Beggs, in testifying as to the decline of the market for striated plywood, was answering a question that was pegged to the time period of '1955 to 1958' (GP Exh. 18, SM 3363-64). The same period was used in the framing of a question to GP's witness L. G. Buckley about the 'status of the lief cycle' of Weldtex's popularity (GP Exh. 21, SM 3317); and, interestingly enough, Buckley answered that the peak of striated fir plywood had not yet been reached by 1955 (GP Exh. 21, SM 3317-18).

Similarly, the testimony of the retail lumber dealer Levine, concerning a 'change of style' away from striated fir, was given in answer to questions concerning the level of Weldtex sales in 1961, as compared with the level in 'past years' (GP Exh. 24, SM 3673-74).

The Court, therefore, finds that, in or about February 1955 and for approximately two years thereafter, the popularity of striated fir plywood was still a choice commodity; that it was viewed by USP and GP as one that would bring in substantial profits; that it was desirable in the eyes of GP; and that because GP coveted it, it deliberately proceeded to manufacture its own striated fir plywood imitation of Weldtex. Consequently, in considering the ultimate question of reasonable royalty, striated fir plywood must be evaluated in the foregoing context.

The entire and actual sales picture of striated plywood during the period from February 1955 through September 19, 1958 has been considered as a circumstance together with all of the other evidence in the case. Taking all of the historical facts into consideration the Court finds that, for purposes of determining a reasonable royalty, striated fir plywood was considered by the parties as a readily salable and highly profitable commodity; and that striated fir plywood had not lost its commercial value as a popular

product at the time of the hypothetical negotiations.

^[2] The circumstance that the Deskey patent (which had issued on June 9, 1942) had only a little over four years to run from February 1955 until it expired on June 9, 1959 (GP Exh. 15) and the argument of GP that the reasonable royalty should therefore be minimal (as testified to by GP's witness L. G. Buckley, SM 3322 (GP Exh. 21)), are neutralized by certain practical business considerations: (1) because striated fir plywood was a product of demonstrated great commercial success, GP did not assume any risk in this respect; (2) a royalty calculated as a percentage of footage actually sold or volume of actual sales, as distinguished from a license fee expressed in advance as a flat amount of dollars, would mean that GP did not assume any fixed financial obligation (Tr. 373-74 (Antoville); Tr. 295-96, 309, 313 (Heilpern)); (3) the opportunity to engage in the sale of a patented product even several years before the patent's expiration would constitute a definite advantage to GP who intended *1127 to market the product after the expiration of the patent (Tr. 386-87 (Antoville)); and (4) GP could get into the profitable production of striated fir plywood with only the modest investment required for a striating machine, amounting to approximately \$12,000 to \$15,000 (Tr. 148-49, 288-89, 323, 344-45).

II

THE FACTOR OF THE PROFITABILITY OF WELDTEx.

The amount of profits that USP was making and could (in February 1955) reasonably expect to continue to make on its sales of Weldtex by licensing no one to sell Weldtex in the United States is of major relevance to the determination of the amount of royalty that USP would accept from GP and that GP would offer. USP was enjoying the profits of a readily salable product. USP was in a position to retain the entire market on striated fir plywood for itself. The result of GP's infringement was to interfere with that monopoly and, as planned, to put GP in direct competition with USP's Weldtex throughout the period of infringement. The hypothetical license would have been one whereby GP would have been permitted to market striated fir plywood throughout the United States (as GP infringingly did).

GP admits that 'one of the most pertinent factors in ascertaining the value of a patent for royalty purposes is the ability or inability of the invention of the patent to make money.' GP does not claim that USP's profits on its Weldtex sales are not a proper factor for consideration in determining the amount of a reasonable royalty.

In the hypothetical negotiations, USP would have been reasonable in taking the position that it would not accept a royalty significantly less than the profit it was making by its policy of licensing no one to sell striated fir plywood in the United States.

In searching for and considering the available evidence of Weldtex's profitability—evidence claimed by USP to exist but whose existence in the record is denied by GP—it is necessary to distinguish sharply that inquiry from the entirely separate issue of the amount of USP's damages in the form of lost profits attributable to GP's infringing sales. That latter issue of lost profits as the measure of damages had been litigated before the special master who found (and this Court affirmed that finding, 243 F.Supp. at 510) that USP had failed to prove that it had sustained a measurable amount of lost profits caused by GP's infringing sales after February 1955 although USP had proved the fact of such damages as distinguished from its quantum. 243 F.Supp. at 512-513.

^[3] ^[4] What must be considered now is the fixation of a reasonable royalty—a determination prescribed by the statute and made necessary for the very reason that USP was unable to prove the quantum of its damages in the form of lost profits. What must be considered now as one of the elements, inter alia, relevant to the determination of the amount of a reasonable royalty, is the rate of profits that USP was making on Weldtex at the time GP began its infringement, and not the amount of profits that USP lost as the result of GP's infringing sales—profits that USP made and was making on and before February 1955 and that it reasonably anticipated it would continue to make, not the profits that it actually lost after February 1955. The statute created the recovery of a reasonable royalty for the very purpose of affording fair compensation in cases such as this, where the victimized patentee is unable to prove that he lost a measurable amount of profits as the result of the infringement.

It is clear, then, that under the statute a reasonable royalty is an alternative way of recovering general compensatory damages and that it is not equitable or commensurable with actual damages computed in terms of demonstrably proved lost profits. This distinction must be emphasized because GP has *1128 obfuscated the issue by coalescing the two different concepts.

Still another preliminary clarification of the issue is needed.

GP makes the dual argument that 'the proofs of 'profitability' of Weldtex are so unsubstantial, or are so unrelated to Deskey value that the backlash is proof that there is no Deskey value'. The foregoing statement,

phrased as it is in the disjunctive, embraces two independent points; (1) that USP has failed to prove the profitability of Weldtex and (2) that USP's evidence of Weldtex's profitability is 'unrelated to Deskey value'—the latter contention being one that poses the issue of apportionment and that will be discussed separately herein in terms of the value of the Deskey invention.

In this juncture, we are considering the issue of the profitability of Weldtex and the record evidence bearing upon that issue.

According to GP, Mr. Heilpern based his figures of value on USP Exh. 58 (Tr. pp. 141-45); Mr. Antoville 'simply generalized about 'its great profitability' (Tr. p. 339), and 'the high profitability' (Tr. pp. 353-55); 'this record provides no clue as to what 'great profitability' or 'high profitability' means'; and 'USP has failed utterly to give any semblance of meaning to the word 'profitability' using 'a false yardstick'.

Mr. Heilpern testified that the profit on Weldtex sales was 'extremely generous' (Tr. 132), 'very substantial' (Tr. 138), and 'extremely profitable' (Tr. 139).

That Weldtex commanded a high selling price in relation to its low manufacturing cost is evidenced by the statement of USP's former president and chairman of its board, as quoted by Mr. Heilpern: 'We made a silk purse out of a sow's ear' (Tr. 132-33 243, 247-51).

A considerable amount of the Heilpern testimony was devoted to explaining the computations contained in USP's Exh. 5B (the same as USP's Exh. 38A in the proceeding before the special master). The data in this exhibit includes, inter alia, the prices and costs involved in USP's actual production and sale of Weldtex and, hence provide some basis for computing the amount or rate of USP's profit on that production and sale.

Mr. Antoville testified that Weldtex had 'great profitability' (Tr. 339); that it was 'a highly profitable item' because it sold for a considerable premium over the price of one quarter AD panel and yet 'cost practically no more to make' (Tr. 339-41) and that Weldtex possessed 'high profitability' (Tr. 353).

During the years 1952 to 1958, Weldtex was manufactured to two sources: the contract mills where approximately 80 per cent of USP's total Weldtex was produced and sold to USP by said mills; and USP's own Seattle plant where approximately 20 per cent of the Weldtex was produced (GP Exh. 8). On an incremental or differential cost accounting basis (as distinguished from an absorption-cost accounting basis), USP made an

average profit of \$54.25 per thousand square feet with respect to the Weldtex produced by USP from the contract mills; and USP made an average profit of \$86.16 per thousand square feet with respect to the Weldtex produced at USP's Seattle plant. When these two profit figures are weighed on the basis of the 80 per cent to 20 per cent production ratio, the ultimate result is \$60.63 as the average rate of profit per thousand square feet earned by USP on all its Weldtex sales at the time of the infringement, computed on an incremental cost accounting basis.

Incremental cost accounting, however, is not considered by the Court as appropriate in determining the actual profitability of Weldtex during the years prior to and up to February 1955. Arguably, that method of cost accounting might be appropriate in evaluating the factor of suppositions profit on additional hypothetical sales that USP would anticipate and preserve for itself by not licensing GP. But the absorption cost-basis is more reliable and pertinent to a determination of the historical profitability *1129 of Weldtex during the years prior to and up to February 1955.

Computed by the absorption method, USP's average rate of profit on its Weldtex sales was \$48.64 per thousand square feet at the time of the infringement.

USP argues that, independently of USP Exhibit 5B, the Antoville and Heilpern testimony establishes that \$60.63 is the rate of profit per thousand square feet of Weldtex sold, and that that figure is 'conservative'. The Court has considered the Antoville testimony (e.g., Tr. 340-41, 343-44)— which is the predicate for USP's contention that the overall profit on Weldtex was approximately \$68.00 per thousand square feet— and the Heilpern testimony (e.g., Tr. 135)— which is the predicate for USP's contention that the overall profit on Weldtex reneged from \$52.00 to \$60.00 per thousand square feet. That testimony does not impress the Court as sufficiently persuasive to warrant a finding other than that USP's average actual profit on Weldtex sales was approximately \$48.00 per thousand square feet; and the Court so finds.

III

THE ASSERTED FACTOR OF INCREASED POTENTIAL PROFITABILITY VIA OPERATIONS OF USP'S PLANT AT EUGENE, OREGON.

Another factor— in addition to the actual profitability rate of Weldtex—urged upon the Court by USP as relevant to the determination of a reasonable royalty is 'the higher potential profits' that USP anticipated it could and would make by producing Weldtex at its plant at Eugene,

Oregon, which it acquired in February 1955. (Tr. 137). Mr. Heilpern testified that these estimated higher profits were among the factors that 'would have been taken into consideration in negotiating a royalty agreement or a license agreement with Georgia-Pacific in 1955' (Tr. 137, 145).

However, it must be noted that the idea of producing Weldtex at Eugene was specifically considered by USP only in mid-1955, according to USP's president, Mr. Brewer. Both the special master and this Court have found that USP failed to prove that it would have manufactured Weldtex at Eugene in the absence of GP's infringement. 243 F.Supp. at 510-511.

Considering all the relevant evidence, the Court's opinion is that the proofs about USP's earning higher potential profits through the prospective operations of the recently-acquired plant at Eugene are not sufficiently reliable and persuasive to warrant a finding that that particular factor would have played a significant part in the formulation of a reasonable royalty at the hypothetical negotiations in February 1955.

IV

THE FACTOR OF USP'S PROFITS VIA COLLATERAL OR CONVOYED SALES.

Another element emphasized by USP as one that it would have taken into account in the hypothetical negotiations to fix a reasonable royalty was the profits it was making on collateral or convoyed sales of other USP products that were generated by Weldtex sales.

Both the special master and the Court have found that USP had failed to prove that it would have earned a measurable or specific amount of additional profits on collateral sales in the absence of GP's infringement; and thus USP had failed to sustain a recovery of damages in any assessable amount under the heading of such lost profits. 243 F.Supp. at 512.

There is logic to USP's present argument distinguishing between the profits derivable from collateral or convoyed sales as one of the elements relevant to the fixation of a reasonable royalty (the current issue) and, on the other hand, the loss of profits from such sales as part of actually sustained damages (the issue previously litigated before the master). The fact of the existence and the substantiality of such profits and the fact of the loss of some of those profits in *1130 the event that GP were licensed to sell striated fir plywood were established by USP. And such facts have some bearing upon the determination of a reasonable royalty.

It would have been reasonable on USP's part in February 1955 to have expected to make future profits through collateral or convoyed sales, which USP would have anticipated losing at least in part by licensing GP to make striated fir plywood. Hence, 'this expectant loss is an element to be considered in retroactively determining a reasonable royalty.' *Egry Register Co. v. Standard Register Co.*, 23 F.2d 438, 443 (6th Cir. 1928); *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, 282 F.2d 653, 671-672 (7th Cir. 1960), cert. denied, 365 U.S. 812, 81 S.Ct. 692, 5 L.Ed.2d 691 (1961).

The testimony of Mr. Heilpern (Tr. 138-39, 323) and Mr. Antoville (Tr. 347-48, 353-55, 370) supports the finding that that element would have influenced them importantly in negotiating the hypothetical royalty with GP; and the Court so finds. The import of their testimony is corroborated by a similar statement emanating from GP's vice president in charge of sales, J. L. Buckley (USP Exh. 8).

The profitability of the collateral or convoyed sales was significant not only from the viewpoint of USP's bargaining position but also in terms of GP's own expectations of an economic advantage, obvious both the USP and GP. GP's reasonable expectation of collateral profits from convoyed sales of products sold along with its striated fir plywood is a factor in the hypothetical negotiations. *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, supra. In point of fact, GP sales of striated fir plywood did generate collateral sales (USP Exhs. 8; 14c; 18, par. 12.B; James L. Buckley's testimony before the special master, SM 2590).

The record therefore leads to the finding that consideration of the collateral sales factor by both parties would have tended to increase significantly the amount of the reasonable royalty hypothetically negotiated between them; and the Court so finds. The record, however, does not enable the Court to quantify the monetary amount of that economic significance in terms of a dollar and cents figure although the factor of profits on collateral sales did possess the economic significance already pointed out.

V

THE FACTOR OF THE SUBSTANTIAL PROFITS GP WOULD REASONABLY HAVE EXPECTED TO EARN ON ITS PRODUCTION AND SALE OF STRIATED FIR PLYWOOD.

GP was most eager to manufacture and sell striated fir plywood because, in the words of its attorney, it had been 'extremely successful * * * without any substantial competition' (USP Exh. 14a).

GP would not have been at a significant competitive disadvantage in marketing striated plywood because (1) GP's striated plywood was exactly the same product as Weldtex for which USP had developed the market; (2) GP had contacts with all of USP's customers; and (3) GP's striated plywood would have been welcomed by the trade as an additional source of supply that would make the market competitive (Tr. 371-72; USP Exh. 9).

This Court found that, if a one-quarter inch AD blank is 'upgraded' by being converted into a 'specialty', 'the possibility of a substantial profit is presented', 243 F.Supp. at 507; and that 'GP's purpose in producing GP striated' was to make a product that would yield 'a substantial profit', supra.

The Court of Appeals not only noted the 'profitable market' that USP had developed for Weldtex but also quoted testimony that GP had begun to manufacture striated fir plywood because it was 'extremely advantageous from a profit standpoint'. 258 F.2d at 133-134.

*1131 The special master found 'that the production of GP striated was planned as a high profit item'. (MR 80.)

GP was willing to assume substantial risks and costs in order to make and sell striated fir plywood without authority from USP. The Court finds that GP would have been willing to pay a substantial royalty to USP in order to obtain reasonably anticipated large profits without the risk of infringement liability.

The Court has considered the evidence in order to quantify the amount of profits that GP would reasonably have expected, at the time of the hypothetical negotiations, to earn on its production and sale of striated fir plywood. This is a different question from the amount of infringing profits that GP actually did make—\$685,837, according to the special master.

GP took, as its own guide for the purpose of profit expectations, the profit that USP was then making on its Weldtex sales. The evidence supports the inference that GP was able to estimate, fairly accurately, the amount of USP's costs on Weldtex; and that GP knew that its own costs would not be significantly higher.

It is undisputed that GP was also well aware of both the warehouse and the direct mill prices of Weldtex (Tr. 136). GP would have expected to sell its own striated fir plywood at the same prices (as, in fact, it did).

Note has already been made of the fact that, in 1955, a striating machine fact that, in 1955, a striating machine

GP had a good idea of what USP's profits on Weldtex were, and could reasonably have expected that it would make at least comparable profits on its own striated plywood.

In fact, there is some basis for the view that GP would reasonably have expected to enjoy a higher average profit margin than USP's because GP's production was predominately at GP's own mills (where average striated fir costs were lower than at contract mills), whereas about 80 per cent of Weldtex in the years 1952 to 1955 came from contract mills.

In any event, since the Court has found that USP's average rate of profit on its Weldtex sales was \$48.64 per thousand square feet at the time of the infringement, the Court also finds that GP would reasonably have expected to earn on its manufacture and sale of striated fir plywood profits at least approximately the same rate.

Moreover, this figure of \$48.64 per thousand square feet must be amplified by virtue of the collateral sales factor insofar as that factor would have reasonably entered into GP's thinking at the time of the hypothetical royalty negotiations.

VI

THE FACTOR OF THE PROFITS THAT GP WOULD REASONABLY HAVE EXPECTED TO EARN ON COLLATERAL OR CONVOYED SALES.

¹⁵¹ The Court finds that, at the time of the hypothetical negotiations, GP would reasonably have expected to derive substantial additional profits from collateral sales of other profits (particularly non-specialty items) sold along with its striated fir plywood, a specialty item. (USP Exh. 8, report of GP's vice president, James Buckley, dated June 29, 1956; USP Exh. 14c, letter of GP's attorney, dated February 8, 1954; USP Exh. 18, par. 12.B; testimony of James Buckley, SM 2590; testimony of Heilpern, Tr. 138-39, 223; Testimony of Antoville, Tr. 353-55.) This is a significant factor to be considered by the Court in determining the reasonable royalty because it has the logical tendency, as a matter of simple economics, to increase the amount of the reasonable royalty.

This factor is relevant to the question now under consideration notwithstanding the fact that USP's proof was found insufficient to show either a measurable amount of collateral profits diverted *1132 from it to GP (and, hence, recoverable as lost profits) or any specific amount of collateral profits earned by GP as the result of the sale of other products generated by the sale of GP striated.

Both the hypothetical licensor's expectant loss of collateral sales (*Egry Register Co. v. Standard Register Co.*, supra) and the hypothetical licensee's expectation of profits on its collateral sales (*Union Carbide Corp. v. Graver Tank & Mfg. Co.*, supra) are relevant elements to be considered in determining a reasonable royalty.

If GP had been negotiating with USP for a license, GP would have taken into consideration all advantages which might accrue to it in determining a royalty which it would be willing to pay. A license to sell the patented striated fir plywood would have enabled GP to expend its business, increase its sales of non-infringing materials and thereby increase its profits. Absent a license, GP accomplished the same result by the sale of its infringing GP striated.

In view of the foregoing, the figure of \$48.64 per thousand square feet of striated fir plywood sold, representing GP's probable expectation of profit on that item alone, would not reflect the factor of GP's expectation of profits on collateral sales generated by the sale of striated plywood.

The evidence does not permit an inference as to the quantum, even approximately, of the profits derivable from collateral sales by GP. To assess this factor separately and monetarily by assigning a dollar and cents valuation to it would involve impermissible conjecture and speculation. In the circumstances, therefore, the indisputable fact that such profits would be generated in a significant amount by the sale of striated fir plywood is treated by the Court as a factor strengthening USP's bargaining position and supporting the reasonableness of the figure of the profit rate on the sale of striated fir plywood.

VII

THE AMOUNT OF THE REASONABLE ROYALTY.

a) GP's argument that the value of striated fir plywood was substantially attributable to elements other than the Deskey patent.

¹⁶¹ This case does not permit application of the principle of apportionment inasmuch as the Deskey patent was not one for an improvement on an article nor was GP's infringement of a patented feature sold together with unpatented parts. Decisions illustrating the rule applicable to patented improvements or to patented parts of articles also embodying unpatented parts are not apposite for the reason that the Deskey patent covered and *Weldtex* represented a marketable article—a panel of striated fir plywood—as an entirety.

The Deskey patent, though using the prior art to a degree, gives substantially the entire value to the structure represented by the infringing article. The present case well illustrates Judge Learned Hand's observation that 'patent infringement often involves nice and casuistical questions * * *.' *Cincinnati Car Co. v. New York Rapid Transit Corp.*, 66 F.2d 592, 593 (2d Cir. 1933).

In terms of a structural test, for example, the contribution of the Deskey invention cannot be isolated as a separate physical part. The invention permeated the plywood panel to such a degree that it should be considered as covering the article as a whole. In this situation, the invention was not only for an improvement.

There is a basic distinction between a patent which is only a part of a machine or structure and which creates only a part of the profits and, on the other hand, a patented article or a patent which gives the entire value to the combination or an article patented as an entirety. Consequently, it is necessary to determine where the invention extends to and affects the whole article, giving it its essential marketability, or *1133 whether it is only for an improvement. This distinction and the related problem of apportionment are expounded in such cases as *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 32 S.Ct. 691, 56 L.Ed. 1222 (1912); *Cincinnati Car Co. v. New York Rapid Transit Corp.*, supra; *Rockwood v. General Fire Extinguisher Co.*, 37 F.2d 62 (2 Cir. 1930); and *Egry Register Co. v. Standard Register Co.*, supra.

Inspired by the distinctions discussed in the above-cited cases, GP attempts to attenuate the significance and value of the Deskey patent by arguing that approximately 50 per cent of the value of striated fir plywood (GP's proposed finding of fact #6) was not essentially attributable to the Deskey patent, but rather was allocable to the method employed on the three-ply panel to 'balance' the striation of the face ply and to its decorative effect.

USP's method of 'balancing' was covered by the Bailey patents (involving the use of an initially heavier ply for the exposed face) whereas GP's method was covered by the Leonardson patent (involving the cutting of wide channels at regular intervals in the reverse ply to remove enough wood to balance the striation of the face). 258 F.2d at 127, 129. Without some such balance, the fir plywood panel (being made of soft wood like Douglas fir) would have warped and been unsalable. (See e.g., G.P. Exh. 19, SM 3664-65 (Brewer)).

Since USP and GP were the only manufacturers of striated fir plywood, the methods of avoiding warping that were used were, understandably, limited to the two

methods taught by Bailey and Leonardson. Other methods, however, were commonly known and readily and economically available to solve this easy mechanical problem. SM 3597-98 (Brewer). They simply were not used by either USP or GP.

Many different and long-standing methods had been devised to solve the warping problem. But the solution of that problem did not evolve or create any commercially successful article like 'Weldtex'. The birth of 'Weldtex' had to await the solution of the other problems of checking and edge separation. This was Deskey's achievement.

The Court of Appeals was fully aware of the warping problem and how it had been solved prior to Deskey. That Court pointed out that 'warping and curling' had been attacked in the prior art by the Hansen patent (by incising the face of the veneer panel with short slits); by three Maurer patents (by incising the face of the panel); and by two Elmendorf patents (by rupturing the veneer and then mounting it on an elastic plastic substance or on a flexible backing); and that those skilled in the art 'were familiar with * * * incising and rupturing as a means of controlling warping' (258 F.2d at 129). The Court of Appeals observed that striation 'does not purport to have a significant effect on warp control' (258 F.2d at 129) and that, in fact, 'striation increases the tendency of the entire panel to warp or curl.' (258 F.2d at 129). The Court then declared that the 'contribution of the Deskey patent' lies 'beyond the area' of the problems of warping or curling caused by striation. (258 F.2d at 129.)

Balancing the panel to prevent warping was no significant problem to anyone possessed of the normal plywood industry skills. It is noteworthy, moreover, that the Deskey patent itself expressly suggested a solution to that recognized problem when it pointed out that the back ply as well as the face ply of the panel could be grooved. See patent, in USP Exh. 31 at 1, col. 2 (describing Fig. 2), at 2, col. 1 at 2, col. 2; Tr. 276-78, 305 (Heilpern) SM 3590-91, 3630-33 (Brewer) (USP Exh. 31).

GP has offered no proof, either before the special master or this Court, to establish that the Leonardson patent contributed any value to the infringing article. On the other hand, USP's president, Mr. Brewer, testified (SM 3581-3667; USP Exhs. 28, 31) persuasively that Leonardson contributed very little value to GP striated; that *1134 Leonardson merely taught another way to solve an easy problem; that the Leonardson nonwarping feature would have to be valued on the basis of the economy that it effected over the cost of controlling warpage by one of several other unpatented methods such as sanding or incising (SM 3597-99, 3608-15, 3617); and that the cost of using these other methods would very

from approximately \$1.00 to \$2.00 per thousand square feet, and the cost of the necessary incising machine would be about \$6,000. SM 3617-19. Mr. Brewer was corroborated by the trial testimony of Mr. Antoville. Tr. 361-65.

The special master found (MR 89-91), and this Court reaffirms and adopts the findings, that any economy effected by the Leonardson patent (and any consequent value ascribable to the balancing function of that patent) was minimal; that GP has offered no proof of value attributable either to the prior art or the Leonardson patent; that GP has not offered any further evidence on that subject before this Court; that the matter of achieving balance through any of the readily available and commonly known methods was unimportant because the fir plywood panel has no commercial value at all unless the other side were striated; that whichever means was used to achieve the balancing of the panel the sales price of the striated fir plywood panel would not have varied; that it is the value of the striated face that created the value of the striated fir plywood panel; that the entire market value of Weldtex and GP striated was attributable to the Deskey patent; and that if any value was attributable to the contribution made by the Bailey patents, in the one case, and by the Leonardson patent, in the other, it would be of minimal character, having little or no influence upon the amount of a reasonable royalty in this case.

There is no basis for GP's argument that the value of striated fir plywood is significantly attributable to elements other than the Deskey patent. Such a proposition is as illogical as a claim that, because an automobile needs wheels to run, an automobile motorized by a patented electronic device owes its substantial value to the wheels.

The Court reaffirms and adopts the special master's findings that Weldtex was an entity in itself, not a combination of things or elements separable in value or profit-producing potentialities; the commercial success of Weldtex was the result of the deep striation of the face, Deskey's invention, which created a new kind of plywood panel, a novel and useful work of craft and art; that no thing or structure or entity, part of Weldtex or of GP's striated, is separable in the manner suggested by subparagraph 'c' of *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, supra, 225 U.S. at 614-615, 32 S.Ct. 691, 56 L.Ed. 1222; that the nonwarping or balancing feature of the Leonardson patent or the Bailey patents represents no separable 'thing' within the meaning of said subparagraph 'c' of *Westinghouse* because it made no substantial or significant contribution of value to the creation of the profits from the sale of the striated fir

plywood; that substantially the entire market value of Weldtex and the infringing GP striated is attributable to the Deskey patent; and that, if any value were allocable to either the Bailey or the Leonardson patents, it would be minimal.

b) The significance of the decorative appearance of Weldtex and GP striated in relation to the question of the amount of a reasonable royalty.

Of course, Weldtex had a pleasing appearance and decorative effect. The Court of Appeals, in alluding to ‘the decorative appearance of Weldtex’ as having ‘contributed toward this (Weldtex’s) commercial success’ (258 F.2d at 131), observed that ‘this commercial success may in considerable measure be due to the decorative appeal of Weldtex and the effectiveness of the striation in masking joints and checks.’ (258 F.2d at 133.) It is necessary to determine the *1135 relationship of these facts to the issue of reasonable royalty.

[7] The decorative appearance or ‘decorative effect’ of Weldtex was not per se a patented element of the Deskey invention. Upon that circumstance as a foundation fact, GP erects the argument that whatever value of Weldtex may be attributable to its decorative appearance must be disregarded in determining the amount of a reasonable royalty for the use of the Deskey patent because ‘decorative appearance’ is a feature beyond the scope of that patent.

The face of GP’s infringing striated fir plywood was, from the viewpoint of deep striations and appearance, structurally and esthetically a replica of USP’s Weldtex. This was the inevitable result of the infringement because the decorative effect or appearance of Weldtex and GP striated is an inherent, indivisible, and inextricable characteristic of Deskey’s deep and random striations.

The originality or uniqueness of Deskey’s striation from the viewpoint of inventive novelty was the deep and random grooving in relation to Douglas fir and other soft woods that solved the problems of checking and edge separation (the tendency of abutting panels to draw away from each other). 258 F.2d at 126-127. The heart of Deskey’s invention was its effective solution of the old and very real problems of checking and edge effects by deep striation (258 F.2d at 130, 134); and ‘deep grooving is an inventive concept’ in relation to soft woods like Douglas fir. 258 F.2d at 135. Because USP was able ‘to warrant Weldtex against checking’, it ‘has used this feature as an essential element of its commercial production’. 258 F.2d at 131. ‘Indeed, * * * it was a demonstration of the effectiveness of the Deskey patent in meeting these two problems which caused the Patent

Office to issue the patent.’ 258 F.2d at 129.

But the Court of Appeals went further and addressed itself to the subject of decorative appearance. Declaring that the patent covers more than a decorative panel (258 F.2d at 130), the Court of Appeals pointed out that prior to the Deskey patent, striation and grooving of wood products, including plywood, had been used ‘for decorative effect’ and were ‘well known’. 258 F.2d at 128, 129.

The Court of Appeals pointed out, however, that Deskey’s concept of striation turned a ‘decorative effect * * * to a utilitarian advantage by cutting deeper into the surface of the plies’. 258 F.2d at 131. This was something not taught by the prior art; Deskey solved problems (i.e., checking and edge separation) ‘without loss of other features’. 258 F.2d at 132. The Court explicitly recognized that ‘Basic to the Deskey patent is the fact that plywood panels covered by the claims are to be used where an esthetically pleasing appearance is essential. This on appearance raises several problems’. 258 F.2d at 129.

In discussing Weldtex’s commercial success, the Court of Appeals stated that, over a sixteen-year period (1940-1956), Weldtex ‘has enjoyed an amazing success, with total sales in the United States exceeding \$56,000,000’; that ‘neither checking nor edge separation has been a source of complaints from users of Weldtex’; and that ‘the advantages stressed in the Deskey patent have played a significant role in the widespread and continued public acceptance of the product.’ (258 F.2d at 131.)

On the same subject, the Court of Appeals also expressed the following opinion:

‘* * * this commercial success may in considerable measure be due to the decorative appeal of Weldtex and the effectiveness of the striation in masking joints and checks. It seems obvious, however, that effective relief of stresses substantially contributed to that success because striation was recognized as a novel and inventive solution to old problems, meeting a long *1136 standing need.’ (258 F.2d at 133.)

The fact that Weldtex’s decorative appearance, a non-patented feature, ‘contributed toward’ its commercial success and that ‘the decorative appeal of Weldtex and the effectiveness of the striation in masking joints and checks’ may account ‘in considerable measure’ for its commercial success— as pointed out by the Court of Appeals, 258 F.2d at 131, 133— has been given due and appropriate consideration and weight by this Court in evaluating all of the evidence bearing upon the question of the amount of a reasonable royalty, especially in light of the explicit references by the Court of Appeals to the subject of the decorative appeal of Weldtex.

Though it be reiteration, we draw attention to the view expressed by the Court of Appeals (quoted above) tAt ‘an esthetically pleasing appearance is essential’ for plywood panels and that this ‘emphasis on appearance’ is ‘basic to the Deskey patent’. 258 F.2d at 129. The quoted language must, of course, be read and construed in factual and literary context with the other sections of the Court of Appeals’ opinion, especially its sharply made point that Deskey turned a decorative effect to a utilitarian advantage thereby successfully elevating the prior well-known art of striation only for decorative effect to the height of invention.

In attempting to allocate to Weldtex’s decorative appearance its proper economic significance in relation to the fixation of a reasonable royalty, the Court is mindful of the salient fact that the decorative appearance of striated fir plywood made under Deskey’s patent was not created by an additive, that is, by some auxiliary substance or process accessory to the striations. The decorative effect represented the automatic and spontaneous appearance of the striations themselves. The deep striations, their decorative effect and their innovative utilitarian results were coupled in an indivisible union of form and function. That union cannot be split by the fission of formal logic to yield separate components of precisely measurable economic significance.

The Court has considered the evidence stressed by GP, that many purchasers of striated fir plywood were motivated to buy it only by its decorative appearance. This evidence does not tend to diminish or deflate the amount of a reasonable royalty in any significant fashion. Without the Deskey patent, GP could not lawfully have sold one square inch striated fir plywood. The Deskey patent created a new article, something that GP had never been able to sell before. GP was seeking the substantial profits it could obtain from the sale of striated fir plywood and of collateral products. To obtain any of those profits legitimately, GP would have had to have a license under the Deskey patent. The fact— as we now know it in retrospect, according to the evidence of the motives of the purchasers of striated fir plywood— that the buyers of that product were attracted to it by its decorative appearance is irrelevant to the hypothetical negotiations of a reasonable royalty where GP’s expectations of profits could be lawfully fulfilled only by a license of the Deskey patent and where the rate of profit could be estimated by both USP and GP on the basis of a long and recognized record of past performance. In this setting of the relative bargaining positions of the parties and the economic realities of this particular situation, the Court rejects GP’s argument based on the decorative appearance of striated fir plywood.

It cannot be said that the fact that the purchasers’ motivation in buying Weldtex was activated by its decorative appeal is irrelevant as a matter of logic or immaterial as a matter of law. That evidence, however, is only one of many other tiles in the mosaic of proof. Since GP could not have created that particular decorative appeal for striated fir plywood without USP’s Deskey patent, the bargaining motivations of USP and GP as aggressive competitors vis-a-vis each other overshadowed the economic significance of the consumers’ motivations. If *1137 the Deskey patent had untested commercial appeal, that is, if Weldtex had just been making its debut in the marketplace, motivational research and evidence as to the nature of the consumers’ reactions would undoubtedly constitute a cogent consideration. Here, however, Weldtex was a well-established, highly successful product, with a consistent profit record of many years. In this particular factual context, psychological analysis of the consumers is largely academic.

c) Absence of a prevailing royalty or royalties in generally comparable circumstances.

GP claims that the amount of a reasonable royalty is strongly evidenced by the proofs concerning (1) the financial arrangements between USP and Deskey; (2) the royalties payable under the five licenses granted by USP to its contract or ‘captive’ mills; (3) the royalties payable under the three licenses granted by USP outside the United States; (4) eight or more miscellaneous other licenses cited by GP; and (5) the opinion testimony of GP’s experts.

Accepting GP’s proofs as possessing sufficient probative value to render them admissible, the Court finds that that evidence does not significantly tend to indicate the amount of a reasonable royalty in the present situation. In each instance, the royalty or other payment cited by GP was made under circumstances that are sharply and fundamentally different from the congeries of controlling facts presently before the Court. Each of the alleged analogies will now be considered seriatim.

(1) The financial arrangements between USP and Deskey.

USP’s original agreement with Deskey was made in 1940. Tr. 116, 150 (Heilpern); see GP Exh. 1. The royalty originally provided for was 5 per cent of the mill price. Tr. 150, 213-14. At that time no patent had been issued. As assignee of the patent application, USP prosecuted the application, paying all the expenses involved, and actually obtaining the patent. Tr. 115, 151, 213 (Heilpern); Tr. 345-46 (Antoville). At the time the agreement was made with Deskey ‘it was a gamble’; no one knew whether

striated fir plywood 'would sell or not sell' or whether the patent would be obtained. Tr. 115-16, 151-52 (Heilpern).

Contrary to GP's reference to this agreement as 'a license from Deskey to make grooved plywood under the patent in suit', the agreement was an assignment by Deskey to USP of his unpatented invention. USP Exh. 31 (Deskey patent); Tr. 149, 151 (Heilpern); Tr. 345-46 (Antoville); see 258 F.2d at 126; 243 F.Supp. at 502.

Significant production of striated fir plywood by USP did not begin until 1945 or 1946. Tr. 117-118. In 1946, the USP-Deskey agreement was revised to give Deskey a royalty of \$2.00 per thousand square feet on the first 12 million square feet each year, and \$1.00 per thousand square feet on the excess. Tr. 116, 188, 192 (Heilpern); GP Exh. 9; see GP Exha. 1 and 1A, and Tr. 194-95 When, in 1946, USP gave Deskey an advance of \$48,000 on royalties, USP regarded it as 'a real gamble because we (USP) did not know how much of the Weldtex we (USP) would sell at all' and 'we (USP) had no means of knowing whether we (USP) would ever earn that royalty at that time.' Tr. 116, 151-52 (Heilpern). USP agreed to pay the royalty to Deskey because it 'hoped to make a good profit'. Tr. 152 (Heilpern).

The circumstances and arrangements between Deskey, the inventor, and USP, the promoter, were basically different from those that would be applicable to the negotiation of a reasonable royalty between two keen competitors like USP and GP in February 1955, when striated fir plywood was already a firmly-established and widely-recognized success.

In February 1955, Weldtex was at the height of its 'amazing success'. 258 F.2d at 131. Its sales since 1951 totaled more than \$23 million and averaged almost \$6 million per year. USP Exh. 1. *1138 USP 'paid out to Deskey in the period 1940-1956 over \$533,000 in royalties'. 258 F.2d at 134. 'The large profits to be made as a result of the strong commercial appeal of a product like Weldtex were well recognized.' 258 F.2d at 134. Cornelius Reckers, GP's laboratory chief, testified that GP began the manufacture of striated plywood because it was "extremely advantageous from a profit standpoint". 258 F.2d at 134. GP's attorney described Weldtex as 'extremely successful'. USP Exh. 14a.

The preponderant weight of the credible evidence (see also Tr. 153 (Heilpern); Tr. 373 (Antoville)) demonstrates convincingly that the commercial circumstances and economic relationships prevailing between Deskey and USP in 1939 or 1940 and in 1946 have no significant probative bearing upon the issue of a reasonable royalty as between USP and GP.

(2) The royalties payable under the five licenses granted by USP to its contract or 'captive' mills.

In the years 1946 and 1950, USP granted licenses—providing for the payment of a royalty to it of \$2.00 per thousand square feet—to five 'captive' mills as follows: Peninsula Plywood Corporation license on October 1, 1946 (GP Exh. 2; USP Exh. 19; Tr. 160-65); Cascades Plywood Corporation license on January 21, 1946 (GP Exh. 3; USP Exh. 20); Mutual Plywood Corporation license on October 26, 1950 (GP Exh. 4; USP Exh. 21); Davidson Plywood & Lumber Co. license re Weldtex on March 31, 1950 (GP Exh. 5; USP Exh. 22); Davidson Plywood & Lumber Co. license on August 1, 1950 re Sketchwood (GP Exh. 6; USP Exhs. 23, 27 (sample of Sketchwood)); Tr. 165-69, 242).

With the exception of the Davidson 'Sketchwood' license (which will be discussed separately), these licenses were limited to the right of the 'captive' mills to manufacture Weldtex for sale only to USP, in effect, to manufacture for USP's account. (Tr. 146.) It was USP that made the substantial profits (of about \$54.25 per thousand square feet) by selling the Weldtex that the 'captive' mills produced for it. There is, therefore, a world of difference between a restricted license to a non-competitive 'captive' mill to manufacture (and only to manufacture) exclusively for USP and, on the other hand, an unrestricted license that would have enabled GP to manufacture and sell for its own account in competition with USP in the very same markets.

The economic value of the 'captive' mills to USP consisted primarily of the assurance of its major supply of fir plywood and only incidentally of a royalty of \$2.00 per thousand square feet, most of which USP, in effect, passed on to Deskey. Tr. 146-47 (Heilpern).

Manifestly, the royalty prescribed by USP for its captive mills has hardly any relevance to the issue of the amount of a reasonable royalty to be negotiated by USP and GP nor does it afford any indication of what the Deskey patent was worth to USP.

The 'Sketchwood' non-exclusive license to Davidson Plywood & Lumber Company, providing for a royalty of \$2.00 per one thousand square feet and terminable on 30 days' notice, does not materially aid GP. Tr. 169-70 (Heilpern). The credible evidence is that 'Sketchwood', a speciality product of Davidson, did not involve striation, although the licensee was authorized to use the Deskey patent. Tr. 166 (Heilpern). 'Sketchwood' was a completely different product from both Weldtex and GP striated. USP Exh. 27; Tr. 170 (Heilpern). Davidson's business was local. 'Sketchwood' was never made or sold

by USP. It had no impact on the market for Weldtex or GP striated. The 'Sketchwood' license, therefore, does not have a bearing on the issue before the Court. The circumstances affecting the isolated and somewhat anomalous 'Sketchwood' license were not comparable to those affecting the nationwide infringement by GP or the hypothetical license between USP and GP.

*1139 (3) The royalties payable under the three licenses granted by USP outside the United States.

The three foreign licenses were: a license on November 26, 1946 by USP to Canadian Forest Products, Ltd. and providing for a royalty of \$3.00 per one thousand square feet of Weldtex (GP Exh. 23; SM 3284-88; Tr. 170-74); a license on December 23, 1947 by USP to Proofwood, Ltd., in Australia, and providing for a royalty of \$3.00 per one thousand square feet of Weldtex (GP Exh. 23; SM 3281-84, 3290; Tr. 170-74); and a license on August 22, 1947 by USP to Fletcher Holdings, Ltd., in New Zealand, and providing for a royalty of \$3.00 per one thousand square feet of Weldtex (GP Exh. 23; SM 3289-90; Tr. 170-74).

The significance of these royalties is largely neutralized by the credible evidence that these licenses were granted by USP outside the United States, in areas where USP itself had no established sales facilities. As to the Australian and New Zealand licenses, USP had no idea what kind of a market could be established there for Weldtex, which was a new product in those remote countries; and, therefore, USP fixed a minimum royalty. USP's purpose in granting the licenses was not so much to obtain royalty income as to establish relationships with the licensees. Tr. 173 (Heilpern).

As to the Canadian license, USP reserved the exclusive right to sell Weldtex in Ontario for its distributing subsidiary in that province, and obtained the licensee's agreement (which was USP's reason for granting the license) to provide that subsidiary with an assured supply of Weldtex and conventional fir plywood. USP had opened distribution in the Province of Ontario but did not have a supply of fir, while the Canadian duty on imported Weldtex was prohibitive. In order to obtain a source of fir and Weldtex, USP gave Canadian Forest Products, Ltd. a license. Tr. 172-73 (Heilpern); GP Exh. 23, including SM 3281-90 (Heilpern).

Because there is no sound basis for a meaningful comparison, the amounts of the royalties payable under the foreign licenses do not carry any significant weight with respect to the issue of a reasonable royalty between USP and GP.

The foreign licenses, like the licenses with the domestic captive mills, were consistent with, and an important part of, USP's policy of reserving for itself the exclusive right to sell Weldtex wherever it had facilities with which to do so, and refusing to license anyone else to sell Weldtex wherever USP itself was able to do so. The rights granted by USP to the foreign licensees were completely different from the rights appropriated by GP, which sold its infringing product in competition with USP throughout the United States.

(4) Eight or more miscellaneous other licenses cited by GP.

As part of GP's thesis that there is a 'pattern of royalties' in the 'plywood and panel industry' 'in generally comparable circumstances', GP relies upon the evidence of royalties payable by USP under three licenses to it; royalties payable by GP under four licenses to it; and several other license royalties.

The three licenses to USP were: a license covering 'Novaply', a three-ply particle board, originally at the rate of 5 per cent of the sales price, which rate was later substantially reduced (Tr. 174-78 (Heilpern)); a license covering 'Planktex', a decorative plywood panel, at the rate of \$3.00 per thousand square feet (Tr. 179-80 (Heilpern)); and a license covering 'Techwood', made of a core of wood, a thin veneer of wood and paper on each side of it, at the rate of 50 cents per thousand square feet (Tr. 180-83 (Heilpern)).

The four licenses to GP were: a non-exclusive license for a plastic overlaid plywood, at the rate of 80 cents per thousand square feet (GP Exh. 20; SM 2622-24 (J. L. Buckley)); an *1140 exclusive license for a laminated oak flooring at the rate of 1 1/2 to 3 1/2 per cent (GP Exh. 20; SM 2625-26 (J. L. Buckley)); an exclusive license for 'Fiberply', an overlaid plywood, made from green rather than dry veneer, at the rate of 1 1/2 per cent. (GP Exh. 20; SM 2627 (J. L. Buckley)); and an exclusive license for hot pressed plywood having no overlay, at the rate of one-half of one per cent. (GP Exh. 20; SM 2627-28 (J. L. Buckley)).

The other license royalties cited by GP were a license granted by L. G. Buckley, providing for an overall royalty of \$8.00 per one thousand square feet (GP Exh. 21; SM 3326-28 (L. G. Buckley)); and two or more unspecified licenses to Armin Elmendorf, providing for various royalty rates ranging up to \$3.00 per thousand square feet. (GP Exh. 22; SM 3304 (Elmendorf)).

Much, though not all, of the probative force of the foregoing evidence is dissipated by the radically different

features and controlling circumstances pertaining to the compared but widely diverse products and the various respective licensors and licensees. While there appear to be some surface similarities to the situation at bar involving striated fir plywood, the dissimilarities as to the products and the parties' relationships preponderate; the relevance of the cited instances to the issue before the Court is superficial, inconclusive and not persuasive.

¹⁸¹ ¹⁹¹ In assessing the probative value of a royalty rate offered by the infringer to prove a rate lower than that claimed by the patentee, the Court may not uncritically accept that numerical evidence. The Court must consider the economic ambiance of that statistic; special circumstances may explain why that particular rate was depressed or lower than others. See *General Motors Corp. v. Dailey*, 93 F.2d 938, 941-942 (6 Cir. 1937). The district judge, in determining the true measure of reasonable royalty, should not consider a 'diminished royalty rate' which represented an amount that the patentee may have been compelled to accept in individual cases 'by the disrepute of his patent and the open defiance of his rights.' *General Motors Corp. v. Dailey*, supra.

This rudimentary principle of analysis has been largely disregarded by GP's simplistic discussion of the figures of royalty rates. There is an absence of meaningful evidence about such obviously pertinent factors as the relative economic positions of the licensor and licensee at the time the particular royalty was negotiated, in terms of their respective bargaining strength and their competitive status inter se; the economics of the market for the particular product before and at the time the particular royalty was negotiated; the character of the particular product itself, as either new or commercially accepted, at the time the particular royalty was negotiated; the past performance of the licensed product in terms of profit-bearing and the degree of its commercial success; and many other similar features that would enable the Court to make a sound businesslike evaluation. Without such evidence, bare data as to a royalty rate and cursory information as to the nature of a particular license transaction are gravely deficient in probative value. They lack the dimension of reality. The Court finds that the preponderant weight of the credible evidence does not establish a meaningful pattern of royalties relevant to the issue now before the Court.

5) The opinion testimony of GP's experts.

GP also relies upon the opinion testimony of four experts as to the amount of royalty which they thought 'would be fair to both of the parties'. None of these witnesses appeared before the Court. Their testimony was put into the record by introducing the transcripts of their prior

testimony given before the special master, as follows: Armin Elmendorf (GP Exh. 22; SM 3290-3306); L. G. Buckley (GP Exh. 21; SM 3307-36); Robert Beggs (GP Exh. 18; SM 3338-64); and James L. Buckley (GP Exh. 20; SM 2535, 2612-30).

***1141** Elmendorf, a wood technologist, is a research engineer in forest products, including plywood. He invented 'Flexwood', which was licensed to USP (Tr. 255 (Heilpern)). Since 1933, he has had his own research and development company, primarily devoted to developing new wood products. He has taken out over 90 patents and has granted approximately 15 licenses, 'almost all of (which) * * * licenses were made very soon after the development of the invention.' He was asked what royalty would represent a fair value for a product like Weldtex under a non-exclusive license granted about four years before the expiration of the patent. In his opinion, his 'own experience' would indicate that 'a fair royalty would be less than 3 per cent.'

L. G. Buckley is in the business of developing and licensing wall panels of various sorts. He also was asked what royalty would represent a fair value for a product like Weldtex under a non-exclusive license granted about four years before the expiration of the patent. His opinion was that 'The figure would be in the range of \$3 per thousand square feet'; that he 'would have a great deal of difficulty in negotiating a contract of any kind with less than six or eight years left on the patent'; and that the two most important factors to be considered in negotiating a license are 'probably, the nature of the product' and how competitive the market was for that product.

Beggs was associated from 1936 to 1959 with Roddis Plywood Corporation, a very substantial enterprise; and from 1945 until 1959 he was first vice president of that company. In response to the same question that had been put to Elmendorf and L. G. Buckley, he expressed the opinion that 'the value of any license that would be granted under' a patent that had three or four years to run and the amount of a 'royalty payment (under such license) would be de minimis'; and that a royalty for Weldtex would amount to 'maybe one or two per cent at the outside'.

James L. Buckley, GP's vice president in charge of sales, has been connected with GP since 1942 and has been GP's chief license negotiator. After enumerating the considerations that influenced him in making or not making a license, he testified that he would have been willing to pay as a royalty for a Deskey license 'not over 2 1/2 per cent' and then 'only if our (GP's) net profit were 5 per cent or more.'

Judge Herlands does not find the testimony of Elmendorf, L. G. Buckley and Beggs persuasive on any of the material points now in issue. They were questioned about 'licenses' in abstract terms; they did not know anything about a licensing situation realistically comparable to that presented by the present case; they were not conversant with the business considerations in the marketing of striated fir plywood; and L. G. Buckley and Elmendorf did not know of any instance where a company successfully marketing a patented product had licensed the patent to a major competitor. Beggs' qualifications were described by the special master as 'thin but not so thin as to dissolve into a nullity.' (GP Exh. 18, at SM 3355). The Elmendorf, Buckley, and Beggs testimony, designed to completely deflate the value of the Deskey patent and to support only a nominal royalty, is at odds with the preponderant weight of the credible evidence.

The testimony of James L. Buckley furnishes some indication, though slight, that GP would have been willing to pay a royalty equal to one-half of the net profit that GP could expect to make on its striated fir plywood sales (GP Exh. 20; SM 2620-21). For the sake of argument premised on the foregoing Buckley position, GP would have been willing to pay a royalty of about \$25.00 per thousand square feet, inasmuch as GP's reasonably expected rate of profit on the sale of striated fir plywood would have been \$50.00 per thousand square feet. It would then be reasonable to assume further that the negotiations would have led to a compromise at about the midpoint *1142 between approximately \$25.00 (that GP would have been willing to pay according to the foregoing assumption) and approximately \$50.00 (that USP would have found acceptable). The result would be a royalty of about \$37.50 per thousand square feet.

Both Raymond T. Heilpern and Sol W. Antoville testified in person before Judge Herlands in behalf of USP. The Court exercised the opportunity thus presented of questioning them. Their extensive appearance on the stand also afforded the Court ample opportunity to observe their demeanor and manner of testifying. Their professional and technical qualifications and their testimonial credibility and reliability appear to have impressed Judge Herlands, and their testimony is equally impressive to me.

Mr. Heilpern had served USP since 1937. In 1955, he was USP's general counsel. He was not only attorney to the company but also business counselor. He attended all the USP board meetings and virtually all management meetings when he was in town and participated in business negotiations and decisions. He had participated in the decision to take an assignment of the Deskey invention in 1940 and in subsequent negotiations with

Deskey in 1945 or 1946 concerning modification of the agreement. He had handled the agreements between USP and the contract or 'captive' mills.

Moreover, not only did Mr. Heilpern participate in more than a dozen license or royalty agreements in the course of his services for USP, but he actively practiced law, in connection with which he represented other clients in matters involving the formulation of license agreements providing for royalties for the use of various products.

In addition to his general familiarity with the various factors entering into the determination of a royalty to be paid under a license agreement to manufacture a given product, he was intimately familiar with the business and legal factors involved in USP's marketing of Weldtex under the Deskey patent. He would have been personally and significantly involved in the decisions and negotiations concerning the hypothetical licensing of the Deskey patent to GP in February 1955. He was preeminently qualified, on the basis of his first-hand knowledge as well as his expertise, to state the factors that would have been taken into account by USP and the ensuing conclusions by USP in determining the amount of the royalty to be required from GP in February 1955 for a license under the Deskey patent.

Mr. Antoville, now retired, had been vice president in charge of sales of USP from 1944 to 1953, and was the company's president and chief executive officer in early 1955, at the time of the hypothetical negotiations. He thus would have made the final decision concerning the hypothetical royalty to be negotiated with GP.

The Heilpern and Antoville testimony was factually supported, authoritative, forthright, realistic, reasoned and specifically and concretely directed to the subject of striated fir plywood.

Mr. Heilpern testified that the range of royalties that USP would have considered accepting in negotiating the hypothetical royalty was between \$50.00 and \$54.00 per thousand square feet of striated fir plywood manufactured and sold by GP, with \$50.00 representing 'the cheapest rate we (USP) would have consented to' (Tr. 132, 324) and that, in his judgment, GP would have been willing to pay at least that minimum rate (Tr. 132-41, 316).

Mr. Antoville's testimony is that USP 'would have asked for \$55.00 to \$65.00 per thousand.' (Tr. 357-58.)

In their opinion, they regarded those figures as representing a reasonable royalty that should be awarded by this Court for GP's infringement. It is USP's submission 'that the minimum amount of the reasonable

royalty to be awarded by the Court should be \$50 per thousand square feet of the infringing product made and sold by GP.’

*1143 The Court accepts the substance of the Heilpern-Antoville testimony (and finds as facts) that a royalty of \$50.00 per thousand square feet payable by GP to USP would have enabled GP to realize a reasonable profit; that GP’s average realization on all its striated fir plywood sales throughout the infringement period was \$159.41 per one thousand square feet (USP Exh. 15, col. 3); that, after paying \$50.00 per one thousand square feet to USP, the remainder of about \$109.41 would enable GP to make a substantial profit; and that, in addition, GP would have the benefit of profits on collateral sales, though that amount cannot be quantified.

CONCLUSION

The amount of the reasonable royalty fixed by the Court has been derived from a close factual analysis of the total record. The reasonable-royalty case law analysis, based on all the reasonable-royalty decisions in this circuit and the most pertinent decisions elsewhere, has furnished general guidelines in the form of the applicable criteria of legal principles and operative facts. To the extent that there is precedential guidance, that factor has been subjected to the qualifications and modifications required by a realistic comparison of the particular facts and individual circumstances in the prior decisions and those

in the case at bar.

^[10] ^[11] The Court finds and concludes that \$50.00 per thousand square feet of the patented product, striated fir plywood, made and sold by GP, represents a fair reasonable royalty that should be paid by GP. This amounts to \$800,000, which is hereby awarded to USP, together with interest on the said award computed from the date of the last infringement, September 1, 1958, to the date of payment of the award, at the rate of 6 per cent per annum.⁵ *Cincinnati Car Co. v. New York Rapid Transit Corp.*, supra at 595; *Rockwood v. General Fire Extinguisher Co.*, supra 37 F.2d at 66; *Egry Register Co. v. Standard Register Co.*, supra, 23 F.2d at 442.

This opinion contains the findings and conclusions required by Fed.R.Civ.P. 52(a).

Within then days from the date of the filing of this opinion and decision, proposed additional or supplemental findings and conclusions may be exchanged and submitted.

Within twenty days from the date of the filing of this opinion and decision, a judgment shall be settled.

All Citations

318 F.Supp. 1116, 166 U.S.P.Q. 235

Footnotes

* State Report Title: Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers Inc.

1 The statute provides:
‘§ 284. Damages

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed.

The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.’

2 In the proceedings before the special master, USP sought recovery on three alternative theories:

(1) ‘Lost profits’ of \$1,101,520, representing the net profits on Weldtex that were diverted from USP by GP’s infringement (on the assumption that USP would have sold 80% Of the striated plywood footage sold by GP), supplemented by an additional lost profit of \$431,410, on ‘convoyed sales’ of other USP products that would have been generated by and sold along with the projected sales of Weldtex;

(2) ‘Infringer’s profits’ of \$1,004,735, representing the net profits derived by GP from the infringing sales, and supplemented by an additional infringer’s profit of \$431,000 on convoyed sales of other GP products generated by and sold along with the GP striated; and

(3) As an alternative method of computation, USP sought damages of \$974,953 on the ‘standard of comparison’ theory, this sum representing the difference between GP’s profits on the infringing sales of GP striated and the profits GP would have earned by selling an equal quantity of unpatented 1/4’ AD panels.

In ruling on USP’s claims, the master rejected the ‘lost profits’ submission. Although finding that USP had proved, among other

things, the fact of damage,— i.e., that loss of sales of Weldtex occurred by reason of GP's infringement— the master found that USP had failed to establish that a measurable quantity of such sales had been lost or that such loss of sales resulted in the loss of a measurable sum in profits.

The master upheld, however, the claim for 'infringer's profits,' and computed these in the amount of \$685,837— as against USP's claim that they were \$1,004,735 and GP's claim that they were only \$145,090.73.

In recommending that the entire \$685,837 be awarded to USP, the master rejected GP's contention that the value of the infringing article had to be apportioned between the Deskey patent and the article's other, non-infringing elements. The master found that the entire market value of the infringing article is attributable to the Deskey patent.

On objections to the master's report, this Court sustained the finding that USP had proved the fact of harm in the form of lost sales due to the infringement, and sustained also the master's rejection of the lost-profits claim. 243 F.Supp. at 512-513. The master's conclusion that USP should be awarded the infringer's profits was rejected, however, on the ground that such an award falls outside the statute's provision for recovery of damages. 243 F.Supp. at 514-546.

Having rejected USP's claims for lost profits or infringer's profits, the Court decided that 'the award to USP should have been and will be computed on the basis of a reasonable royalty.' 243 F.Supp. at 505, 512, 514, 546.

3 STIPULATION

WHEREAS, the following facts appear herein:

1. On June 15, 1965, this Court, by The Honorable William B. Herlands, Judge, sustaining exceptions to the report of the Special Master herein, held and ordered that the proper measure of recovery by the defendant, United States Plywood Corporation, because of the infringement by plaintiff, Georgia-Pacific Corporation, of claim 1 of United States patent to Deskey, No. 2,286,068, should have been, and would be computed on the basis of a reasonable royalty, and that further hearings should be had to determine the amount of said royalty (243 F.Supp. 500, 546-547).

2. Pursuant to this order, a first hearing was duly held for the purpose of determining said reasonable royalty on June 29, 1965 (Tr. p. 1)*. The last of said

*The hearings commencing with that of June 29, 1965 are reported and are consecutively numbered from page 1 through page 1428A, and are here designated as 'Tr. p. .'

hearings occurred on June 24, 1969 (Tr. p. 1272), at the conclusion of which it was ordered that briefs be submitted on July 22, 1969 at 5:00 P.M. (Tr. pp. 1427-1428A).

3. During the course of said hearings, Georgia-Pacific Corporation Exhibits Nos. 1 through 38, and United States Plywood Corporation Exhibits Nos. 1-47, 50, 53-56, 59-68 (including all subletterings or numbers) were received in evidence, together with two letters dated June 27, 1969 and June 30, 1969, respectively, from Raymond T. Heilpern to Judge Herlands, together with an enclosure, and from John Vaughan Groner to Judge Herlands.

4. Following the submission of this cause to Judge Herlands as set forth above, Judge Herlands on August 28, 1969 died without having made such determination, it being understood, however, that at time time of his death, Judge Herlands had prepared a draft of his opinion herein together with notes or other memoranda relating thereto.

5. Thereafter, on or about October 9, 1969, the Honorable Sidney Sugarman, Chief Judge of this Court, referred this action to the Honorable Charles H. Tenney, United States District Judge, for all purposes.

Now, therefore, it is stipulated by and between the parties hereto, by their counsel, that this cause be submitted for the purpose of determining the amount of said reasonable royalty upon the proceedings referred to herein, and upon the briefs filed by both parties herein on September 22, and September 23, 1966, November 28, 1966, January 22, 1968, and July 22, 1969 (proposed findings of fact and conclusions of law having been submitted with the briefs of November 28, 1966 and July 22, 1969), together with oral argument if desired or ordered by Judge Tenney; it being specifically understood and agreed between the parties hereto that Judge Tenney shall have the full and unlimited right to use or not to use all or any part of said draft of opinion, notes and memoranda, with or without acknowledgment of its source, as though the same were a part of the record made herein.

Georgia-Pacific Corporation

By _____

Its Attorney

Dated: December 17, 1969

United States Plywood Corporation

By _____

Its Attorney

Dated: December 17, 1969

4 Both GP and USP have declined the opportunity for further oral argument before this Court.


5 The Supreme Court in *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 505-506, 84 S.Ct. 1526, 1542, 12 L.Ed.2d 457 (1964), referred to the legislative history:

"The object of the bill is to make the basis of recovery in patent-infringement suits general damages, that is, any damages the complainant can prove, not less than a reasonable royalty, together with interest from the time infringement occurred, rather than profits and damages." H.R.Rep. No. 1587, 79th Cong., 2d Sess. (1946), to accompany H.R. 5311, at 1-2; S.Rep. No. 1503, 79th

Cong., 2d Sess. (1946), to accompany H.R. 5311, at 2, U.S.Code Cong.Service 1946, p. 1387.’

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Superseded by Statute as Stated in [Advanceme Inc. v. RapidPay, LLC](#),
E.D.Tex., August 14, 2007

70 S.Ct. 854
Supreme Court of the United States

GRAVER TANK & MFG. CO., Inc., et al.
v.
LINDE AIR PRODUCTS CO.

No. 2.

Reargued March 30, 1950.

Decided May 29, 1950.

Motion to Issue Mandate Denied June 5, 1950.

See 70 S.Ct. 1017.

Synopsis

The Linde Air Products Company brought action for patent infringement against Graver Tank & Manufacturing Company and others. A judgment holding certain claims of plaintiff's patent invalid and holding other claims valid and infringed was entered by the United States District Court, Northern Division of Indiana, Hammond Division, Luther M. Swygert, J., 86 F.Supp. 191, and upon appeal the portion of the judgment holding certain claims invalid was reversed by the Court of Appeals for the Seventh Circuit, William M. Sparks, Circuit Judge, 167 F.2d 531, and the defendants brought certiorari. The judgment of the Court of Appeals insofar as it reversed that of the District Court was reversed and judgment of the District Court was reinstated by the Supreme Court, 336 U.S. 271, 69 S.Ct. 535, 93 L.Ed. 672, and thereafter a rehearing was granted limited to the question of infringement of the four valid flux claims 18, 20, 22 and 23 in plaintiff's patent No. 2,043,960, relating to electric welding. The Supreme Court, Mr. Justice Jackson, held that finding that the four flux claims of plaintiff's patent were infringed by defendants' device under doctrine of equivalents was not clearly erroneous.

Affirmed.

Mr. Justice Black and Mr. Justice Douglas dissented.

West Headnotes (11)

[1] Patents Substitution of Equivalents

291 Patents
291 VII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

The essence of the doctrine of "equivalents" is that one may not practice a fraud on a patent.

[64 Cases that cite this headnote](#)

[2] Patents Substitution of Equivalents

291 Patents
291 VII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

A patentee may invoke doctrine of "equivalents" to proceed against producer of a device if it performs substantially the same function in substantially the same way to obtain same result as patentee's device.

[1343 Cases that cite this headnote](#)

[3] Patents Substitution of Equivalents

291 Patents
291 VII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

The theory on which the doctrine of

“equivalents” is founded is that if two devices do the same work in substantially the same way, and accomplish the same result, they are the same, even though they differ in name, form, or shape.

[1115 Cases that cite this headnote](#)

[4] **Patents** → Substitution of Equivalents

291 Patents
291 VIII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

The doctrine of equivalents operates not only in favor of patentee of a pioneer or primary invention, but also for patentee of a secondary invention consisting of a combination of old ingredients which produce new and useful results, although the area of equivalence may vary under the circumstances.

[154 Cases that cite this headnote](#)

[5] **Patents** → Substitution of Equivalents

291 Patents
291 VIII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

Where a device is so far changed in principle from a patented article that it performs the same or similar function in a substantially different way, but nevertheless falls within literal words of the claim, the doctrine of equivalents may be used to restrict the claim and defeat patentee’s action for infringement.

[1357 Cases that cite this headnote](#)

[6] **Patents** → Compositions and compounds
Patents → Machines and Mechanical Devices

291 Patents
291 VIII Patent Infringement
291 VII(B) Particular Fields of Invention
291k1650 Compositions and compounds
(Formerly 291k237)
291 Patents
291 VIII Patent Infringement
291 VII(B) Particular Fields of Invention
291k1675 Machines and Mechanical Devices
291k1676 In general
(Formerly 291k237)

The doctrine of equivalents in patent infringement case is applied to mechanical or chemical equivalents in compositions or devices.

[69 Cases that cite this headnote](#)

[7] **Patents** → Substitution of Equivalents

291 Patents
291 VIII Patent Infringement
291 VII(A) In General
291k1568 Patents for Machines, Products, or Devices
291k1574 Substitution of Equivalents
291k1574(1) In general
(Formerly 291k237)

What constitutes equivalency in patent infringement action must be determined against the context of the patent, the prior art, and the particular circumstances of the case.

[67 Cases that cite this headnote](#)

[8] **Evidence** → Machinery and mechanical devices and appliances
Patents → Admissibility

157 Evidence
157 XII Opinion Evidence
157 XII(C) Competency of Experts

157k539Machinery and mechanical devices and appliances
(Formerly 291k312(2))
291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)3Evidence
291k1821Admissibility
291k1822In general
(Formerly 291k312(2))

A finding of equivalence in patent infringement action is a determination of fact, and proof thereof can be made in any form, through testimony of experts or others versed in technology, by documents, including texts and treatises, and by disclosures of the prior art.

101 Cases that cite this headnote

[9] **Patents** → Infringement or noninfringement

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review
291k1965Scope, Standard, and Extent of Review
291k1970Particular Matters
291k1970(15)Infringement or noninfringement
(Formerly 291k324.55(5), 291k324(55/8))

The issue of equivalents in patent infringement action is to be decided by trial court, and that court's decision should not be disturbed on appeal unless clearly erroneous. [Fed.Rules of Civ.Proc., rule 52\(a\)](#), 28 U.S.C.A.

52 Cases that cite this headnote

[10] **Patents** → Infringement or noninfringement

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review
291k1965Scope, Standard, and Extent of Review
291k1970Particular Matters
291k1970(15)Infringement or noninfringement
(Formerly 291k324.55(5), 291k324(55/8))

Finding that composition claims 18, 20, 22 and 23 of [patent No. 2,043,960](#), relating to electric welding, were infringed by defendants' device under doctrine of equivalents was not clearly erroneous. [Fed.Rules of Civ.Proc., rule 52\(a\)](#), 28 U.S.C.A.

308 Cases that cite this headnote

[11] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 1,467,825, US Patent 1,754,566.
Cited as Prior Art.

11 Cases that cite this headnote

Attorneys and Law Firms

****855 *606** Mr. Thomas V. Koykka, Cleveland, Ohio, for petitioners.

Mr. John T. Cahill, New York City, Richard R. Wolfe, Chicago, Ill., for respondent.

Opinion

Mr. Justice JACKSON delivered the opinion of the Court.

Linde Air Products Co., owner of the Jones patent for an electric welding process and for fluxes to be used therewith, brought an action for infringement against Lincoln and the two Graver companies. The trial court held four flux claims valid and infringed and certain other flux claims and all process claims invalid. [86 F.Supp. 191](#). The Court of Appeals affirmed findings of validity and infringement as to the four flux claims but reversed the trial court and held valid the process claims and the remaining contested flux claims. [167 F.2d 531](#). We granted certiorari, [335 U.S. 810](#), [69 S.Ct. 50](#), [93 L.Ed. 366](#), and reversed the judgment of the Court of Appeals

insofar as it reversed that of the trial court, and reinstated the District Court decree. 336 U.S. 271, 69 S.Ct. 535, 93 L.Ed. 672. Rehearing was granted, limited to the question of infringement of the four valid flux claims and to the applicability of the doctrine of equivalents to findings of fact in this case. 337 U.S. 910, 69 S.Ct. 1046, 93 L.Ed. 1722.

***607** At the outset it should be noted that the single issue before us is whether the trial court's holding that the four flux claims have been infringed will be sustained. Any issue as to the validity of these claims was unanimously determined by the previous decision in this Court and attack on their validity cannot be renewed now by reason of limitation on grant of rehearing. The disclosure, the claims, and the prior art have been adequately described in our former opinion and in the opinions of the courts below.

In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim. If accused matter falls clearly within the claim, infringement is made out and that is the end of it.

****856** But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.

***608** ^[1] ^[2] ^[3] ^[4] ^[5] ^[6] The doctrine of equivalents evolved in response to this experience. The essence of the doctrine is that one may not practice a fraud on a patent. Originating almost a century ago in the case of *Winans v. Denmead*, 15 How. 330, 14 L.Ed. 717, it has been consistently applied by this Court and the lower federal courts, and continues today ready and available for utilization when the proper circumstances for its application arise. 'To temper unsparing logic and prevent an infringer from stealing the benefit of the invention'¹ a patentee may invoke this doctrine to proceed against the

producer of a device 'if it performs substantially the same function in substantially the same way to obtain the same result.' *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42, 50 S.Ct. 9, 13, 74 L.Ed. 147. The theory on which it is founded is that 'if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form or shape.' *Union Paper-Bag Machine Co. v. Murphy*, 97 U.S. 120, 125, 24 L.Ed. 935. The doctrine operates not only in favor of the patentee of a pioneer or primary invention, but also for the patentee of a secondary invention consisting of a combination of old ingredients which produce new and useful results, *Imhaeuser v. Buerk*, 101 U.S. 647, 655, 25 L.Ed. 945, although the area of equivalence may vary under the circumstances. See *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 414—415, 28 S.Ct. 748, 749, 52 L.Ed. 1122, and cases cited; *Seymour v. Osborne*, 11 Wall. 516, 556, 20 L.Ed. 33; *Gould v. Rees*, 15 Wall. 187, 192, 21 L.Ed. 39. The wholesome realism of this doctrine is not always applied in favor of a patentee but is sometimes used against him. Thus, where a device is so far changed in principle from a patented article that it performs the same or a similar function in a substantially different way, but nevertheless falls within the ***609** literal words of the claim, the doctrine of equivalents may be used to restrict the claim and defeat the patentee's action for infringement. *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537, 568, 18 S.Ct. 707, 722, 42 L.Ed. 1136. In its early development, the doctrine was usually applied in cases involving devices where there was equivalence in mechanical components. Subsequently, however, the same principles were also applied to compositions, where there was equivalence between chemical ingredients. Today the doctrine is applied to mechanical or chemical equivalents in compositions or devices. See discussions and cases collected in 3 Walker on Patents (Deller's ed. 1937) ss 489—492; Ellis, Patent Claims (1949) ss 59—60.

^[7] What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered ****857** in a vacuum. It does not require complete identity for every purpose and in every respect. In determining equivalents, things equal to the same thing may not be equal to each other and, by the same token, things for most purposes different may sometimes be equivalents. Consideration must be given to the purpose for which an ingredient is used in a patent, the qualities it has when combined with the other ingredients, and the function which it is intended to perform. An important factor is whether persons reasonably skilled in

the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.

¹⁸¹ ¹⁹¹ A finding of equivalence is a determination of fact. Proof can be made in any form: through testimony of experts or others versed in the technology; by documents, including texts and treatises; and, of course, by the disclosures of the prior art. Like any other issue of fact, final determination requires a balancing of credibility, *610 persuasiveness and weight of evidence. It is to be decided by the trial court and that court's decision, under general principles of appellate review, should not be disturbed unless clearly erroneous. Particularly is this so in a field where so much depends upon familiarity with specific scientific problems and principles not usually contained in the general storehouse of knowledge and experience.

In the case before us, we have two electric welding compositions or fluxes: the patented composition, Unionmelt Grade 20, and the accused composition, Lincolnweld 660. The patent under which Unionmelt is made claims essentially a combination of alkaline earth metal silicate and calcium fluoride; Unionmelt actually contains, however, silicates of calcium and magnesium, two alkaline earth metal silicates. Lincolnweld's composition is similar to Unionmelt's, except that it substitutes silicates of calcium and manganese—the latter not an alkaline earth metal—for silicates of calcium and magnesium. In all other respects, the two compositions are alike. The mechanical methods in which these compositions are employed are similar. They are identical in operation and produce the same kind and quality of weld.

The question which thus emerges is whether the substitution of the manganese which is not an alkaline earth metal for the magnesium which is, under the circumstances of this case, and in view of the technology and the prior art, is a change of such substance as to make the doctrine of equivalents inapplicable; or conversely, whether under the circumstances the change was so insubstantial that the trial court's invocation of the doctrine of equivalents was justified.

Without attempting to be all-inclusive, we note the following evidence in the record: Chemists familiar with the two fluxes testified that manganese and magnesium were similar in many of their reactions (R. 287, 669). There is testimony by a metallurgist that alkaline earth *611 metals are often found in manganese ores in their natural state and that they serve the same purpose in the fluxes (R. 831—832); and a chemist testified that 'in the sense of the patent' manganese could be included as an

alkaline earth metal (R. 297). Much of this testimony was corroborated by reference to recognized texts on inorganic chemistry (R. 332). Particularly important, in addition, were the disclosures of the prior art, also contained in the record. The Miller patent, No. 1,754,566, which preceded the patent in suit, taught the use of manganese silicate in welding fluxes (R. 969, 971). Manganese was similarly disclosed in the Armor patent, No. 1,467,825, which also described a welding composition (R. 1346). And the record contains no evidence of any kind to show that Lincolnweld was developed as the result of independent research or experiments.

It is not for this Court to even essay an independent evaluation of this evidence. This is the function of the trial court. And, as we have heretofore observed, 'To no type of case is this * * * more appropriately applicable than to the one before us, where the evidence is largely the testimony **858 of experts as to which a trial court may be enlightened by scientific demonstrations. This trial occupied some three weeks, during which, as the record shows, the trial judge visited laboratories with counsel and experts to observe actual demonstrations of welding as taught by the patent and of the welding accused of infringing it, and of various stages of the prior art. He viewed motion pictures of various welding operations and tests and heard many experts and other witnesses.' 336 U.S. 271, 274—275, 69 S.Ct. 535, 537, 93 L.Ed. 672.

¹¹⁰¹ The trial judge found on the evidence before him that the Lincolnweld flux and the composition of the patent in suit are substantially identical in operation and in result. He found also that Lincolnweld is in all respects equivalent to Unionmelt for welding purposes. And he concluded that 'for all practical purposes, manganese silicate *612 can be efficiently and effectively substituted for calcium and magnesium silicates as the major constituent of the welding composition.' These conclusions are adequately supported by the record; certainly they are not clearly erroneous.²

It is difficult to conceive of a case more appropriate for application of the doctrine of equivalents. The disclosures of the prior art made clear that manganese silicate was a useful ingredient in welding compositions. Specialists familiar with the problems of welding compositions understood that manganese was equivalent to and could be substituted for magnesium in the composition of the patented flux and their observations were confirmed by the literature of chemistry. Without some explanation or indication that Lincolnweld was developed by independent research, the trial court could properly infer that the accused flux is the result of imitation rather than

experimentation or invention. Though infringement was not literal, the changes which avoid literal infringement are colorable only. We conclude that the trial court's judgment of infringement respecting the four flux claims was proper, and we adhere to our prior decision on this aspect of the case.

Affirmed.

Mr. Justice MINTON took no part in the consideration or decision of this case.

Mr. Justice BLACK, with whom Mr. Justice DOUGLAS concurs, dissenting.

I heartily agree with the Court that 'fraud' is bad, 'piracy' is evil, and 'stealing' is reprehensible. But in *613 this case, where petitioners are not charged with any such malevolence, these lofty principles do not justify the Court's sterilization of Acts of Congress and prior decisions, none of which are even mentioned in today's opinion.

The only patent claims involved here describe respondent's product as a flux 'containing a major proportion of alkaline earth metal silicate.' The trial court found that petitioners used a flux 'composed principally of manganese silicate.' Finding also that 'manganese is not an alkaline earth metal,' the trial court admitted that petitioners' flux did not 'literally infringe' respondent's patent. Nevertheless it invoked the judicial 'doctrine of equivalents' to broaden the claim for 'alkaline earth metals' so as to embrace 'manganese.' On the ground that 'the fact that manganese is a proper substitute * * * is fully disclosed in the specification' of respondent's patent, it concluded that 'no determination need be made whether it is a known chemical fact outside the teachings of the patent that manganese is an equivalent * * *.' Since today's affirmance unquestioningly follows the findings of the trial court, this Court necessarily **859 relies on what the specifications revealed.¹ In so doing, it violates a direct mandate of Congress without even discussing that mandate.

R.S. s 4888, as amended, 35 U.S.C. s 33, 35 U.S.C.A. s 33, provides that an applicant 'shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.' We have held in this very case that this statute precludes invoking the specifications to alter a claim free

from ambiguous language, since 'it is the claim which measures the grant *614 to the patentee.'² *Graver Mfg. Co. v. Linde Co.*, 336 U.S. 271, 277, 69 S.Ct. 535, 538, 93 L.Ed. 672. What is not specifically claimed is dedicated to the public. See, e.g., *Miller v. Brass Co.*, 104 U.S. 350, 352, 26 L.Ed. 783. For the function of claims under R.S. s 4888, as we have frequently reiterated, is to exclude from the patent monopoly field all that is not specifically claimed, whatever may appear in the specifications. See, e.g., *Marconi Wireless Co. v. United States*, 320 U.S. 1, 23, 63 S.Ct. 1393, 1403, 87 L.Ed. 1731, and cases there cited. Today the Court tacitly rejects those cases. It departs from the underlying principle which, as the Court pointed out in *White v. Dunbar*, 119 U.S. 47, 51, 7 S.Ct. 72, 74, 30 L.Ed. 303, forbids treating a patent claim 'like a nose of wax, which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what its words express. * * * The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.' Giving this patentee the benefit of a grant that it did not precisely claim is no less 'unjust to the public' and no less an evasion of R.S. s 4888 merely because done in the name of the 'doctrine of equivalents.'

In seeking to justify its emasculation of R.S. s 4888 by parading potential hardships which literal enforcement might conceivably impose on patentees who had for some reason failed to claim complete protection for their discoveries, the Court fails even to mention the program for alleviation of such hardships which Congress itself *615 has provided. 35 U.S.C. s 64, 35 U.S.C.A. s 64, authorizes reissue of patents where a patent is 'wholly or partly inoperative' due to certain errors arising from 'inadvertence, accident, or mistake' of the patentee. And while the section does not expressly permit a patentee to expand his claim, this Court has reluctantly interpreted it to justify doing so. *Miller v. Brass Co.*, 104 U.S. 350, 353—354, 26 L.Ed. 783. That interpretation, however, was accompanied by a warning that 'Reissues for the enlargement of claims should be the exception and not the rule.' 104 U.S. at page 355, 26 L.Ed. 783. And Congress was careful to hedge the privilege of reissue by exacting conditions. It also entrusted the Patent Office, not the courts, with initial authority to determine whether expansion of a claim was justified,³ **860 and barred suits for retroactive infringement based on such expansion. Like the Court's opinion, this congressional plan adequately protects patentees from 'fraud,' 'piracy,' and 'stealing.' Unlike the Court's opinion, it also protects business men from retroactive infringement suits and

judicial expansion of a monopoly sphere beyond that which a patent expressly authorizes. The plan is just, fair, and reasonable. In effect it is nullified by this decision undercutting what *616 the Court has heretofore recognized as wise safeguards. See *Milcor Steel Co. v. Fuller Co.*, 316 U.S. 143, 148, 62 S.Ct. 969, 972, 86 L.Ed. 1332. One need not be a prophet to suggest that today's rhapsody on the virtue of the 'doctrine of equivalents' will, in direct contravention of the Miller case supra, make enlargement of patent claims the 'rule' rather than the 'exception.'

Whatever the merits of the 'doctrine of equivalents' where differences between the claims of a patent and the allegedly infringing product are de minimis, colorable only, and without substance, that doctrine should have no application to the facts of this case. For the differences between respondent's welding substance and petitioner's claimed flux were not nearly so slight. The claims relied upon here did not involve any mechanical structure or process where invention lay in the construction or method rather than in the materials used. Rather they were based wholly on using particular materials for a particular purpose. Respondent's assignors experimented with several metallic silicates, including that of manganese. According to the specifications (if these are to be considered) they concluded that while several were 'more or less efficacious in our process, we prefer to use silicates of the alkaline earth metals.' Several of their claims which this Court found too broad to be valid encompassed manganese silicate; the only claims found valid did not. Yet today the Court disregards that crucial deficiency, holding those claims infringed by a composition of which 88.49% by weight is manganese silicate.

In view of the intense study and experimentation of respondent's assignors with manganese silicate, it would be frivolous to contend that failure specifically to include that substance in a precise claim was unintentional. Nor does respondent attempt to give that or any other explanation for its omission. But the similar use of manganese in prior expired patents, referred to in the Court's opinion, raises far more than a suspicion that its elimination *617 from the valid claims stemmed from fear that its inclusion by name might result in denial or subsequent invalidation of respondent's patent.

Under these circumstances I think petitioner had a right to act on the belief that this Court would follow the plain mandates of Congress that a patent's precise claims mark its monopoly boundaries, and that expansion of those claims to include manganese could be obtained only in a statutory reissue proceeding. The Court's ruling today sets the stage for more patent 'fraud' and 'piracy' against

business than could be expected from faithful observance of the congressionally enacted plan to protect business against judicial expansion of precise patent claims. Hereafter a manufacturer cannot rely on what the language of a patent claims. He must be able, at the peril of heavy infringement damages, to forecast how far a court relatively inversed in a particular technological field will expand the claim's language after considering the testimony of technical experts in that field. To burden business enterprise on the assumption that men possess such a prescience bodes ill for the kind of competitive economy that is our professed goal.

****861** The way specific problems are approached naturally has much to do with the decisions reached. A host of prior cases, to some of which I have referred, have treated the 17-year monopoly authorized by valid patents as a narrow exception to our competitive enterprise system. For that reason, they have emphasized the importance of leaving business men free to utilize all knowledge not preempted by the precise language of a patent claim. E.g., *Sontag Stores Co. v. Nut Co.*, 310 U.S. 281, 60 S.Ct. 961, 84 L.Ed. 1204, and cases there cited. In the Sontag case Mr. Justice McReynolds, speaking for a unanimous Court, said in part: 'In the case under consideration the patentee might have included in the application for the original patent, claims broad enough to embrace petitioner's accused machine, but did not. *618 This 'gave the public to understand' that whatever was not claimed 'did not come within his patent and might rightfully be made by anyone.'" 310 U.S. at page 293, 60 S.Ct. at page 966, 967, 84 L.Ed. 1204.

The Court's contrary approach today causes it to retreat from this sound principle. The damages retroactively assessed against petitioner for what was authorized until today are but the initial installment on the cost of that retreat.

Mr. Justice DOUGLAS, dissenting.

The Court applies the doctrine of equivalents in a way which subverts the constitutional and statutory scheme for the grant and use of patents.

The claims of the patent are limited to a flux 'containing a major proportion of alkaline earth metal silicate.' Manganese silicate, the flux which is held to infringe, is not an alkaline earth metal silicate. It was disclosed in the application and then excluded from the claims. It therefore became public property. See *Mahn v. Harwood*, 112 U.S. 354, 361, 5 S.Ct. 174, 178, 6 S.Ct. 451, 28 L.Ed.

665. It was, to be sure, mentioned in the specifications. But the measure of the grant is to be found in the claims, not in the specifications. *Milcor Steel Co. v. Fuller Co.*, 316 U.S. 143, 145, 146, 62 S.Ct. 969, 970, 971, 86 L.Ed. 1332. The specifications can be used to limit but never to expand the claim. See *McClain v. Ortmyer*, 141 U.S. 419, 424, 12 S.Ct. 76, 77, 35 L.Ed. 800.

The Court now allows the doctrine of equivalents to erase those time-honored rules. Moreover, a doctrine which is said to protect against practicing ‘a fraud on a patent’ is


used to extend a patent to a composition which could not be patented. For manganese silicate had been covered by prior patents, now expired. Thus we end with a strange anomaly: a monopoly is obtained on an unpatented and unpatentable article.

All Citations

339 U.S. 605, 70 S.Ct. 854, 94 L.Ed. 1097, 85 U.S.P.Q. 328

Footnotes

- 1 L. Hand in *Royal Typewriter Co. v. Remington Rand*, 2 Cir., 168 F.2d 691, 692.
- 2 Rule 52(a), Federal Rules of Civil Procedure, 28 U.S.C.A. provides in part: ‘Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses.’
- 1 For this reason the tidbits of evidence painstakingly selected from the record by this Court have no significance, since the trial court avowedly did not look beyond the specifications themselves.
- 2 This Court’s approval of the trial judge’s resort to specifications is ironic as well as unfortunate. In its original opinion this Court rejected respondent’s contention that the very language invoked here to support infringement should be applied to validate a claim otherwise too broad to be upheld. 336 U.S. 271, 277, 69 S.Ct. 535, 538, 93 L.Ed. 672.
- 3 ‘This provision was inserted in the law for the purpose of relieving the courts from the duty of ascertaining the exact invention of the patentee by inference and conjecture, derived from a laborious examination of previous inventions, and a comparison thereof with that claimed by him. This duty is now cast upon the Patent Office. There his claim is, or is supposed to be, examined, scrutinized, limited, and made to conform to what he is entitled to. If the office refuses to allow him all that he asks, he has an appeal. But the courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office, or the appellate tribunal to which contested applications are referred. When the terms of a claim in a patent are clear and distinct (as they always should be), the patentee, in a suit brought upon the patent, is bound by it. *Merrill v. Yeomans*, 94 U.S. 568, 24 L.Ed. 235.’ *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U.S. 274, 278, 24 L.Ed. 344.

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [Sanofi-Aventis Deutschland GMBH v. Mylan Pharmaceuticals Inc.](#), Fed.Cir., November 19, 2019
127 S.Ct. 1727
Supreme Court of the United States

KSR INTERNATIONAL CO., Petitioner,
v.
TELEFLEX INC. et al.

No. 04–1350.

Argued Nov. 28, 2006.

Decided April 30, 2007.

Synopsis

Background: Exclusive licensee of patent for position-adjustable vehicle pedal assembly sued competitor for infringement. [The United States District Court for the Eastern District of Michigan](#), 298 F.Supp.2d 581, granted summary judgment for competitor on the ground of obviousness. Licensee appealed. The United States Court of Appeals for the Federal Circuit, 119 Fed.Appx. 282, reversed. Certiorari was granted.

[Holding:] The Supreme Court, Justice [Kennedy](#), held that patent was invalid as obvious.

Reversed and remanded.

West Headnotes (11)

[1] Patents Combination of Elements

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k696 Combination of Elements
291k696(1) In general
(Formerly 291k26(1.1))

Patent claiming the combination of elements of prior art is obvious if the improvement is no more than the predictable use of prior art elements according to their established functions. 35 U.S.C.A. § 103.

421 Cases that cite this headnote

[2] Patents Combination of Elements

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k696 Combination of Elements
291k696(1) In general
(Formerly 291k26(1.1))

Patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. 35 U.S.C.A. § 103.

250 Cases that cite this headnote

[3] Patents Prior Art and Relation of Claimed Invention Thereo

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k683 In general
(Formerly 291k16.5(1))

In determining whether subject matter of patent claim is obvious, neither the particular motivation nor the avowed purpose of patentee controls; what matters is the objective reach of the claim. 35 U.S.C.A. § 103.

75 Cases that cite this headnote

35 U.S.C.A. § 103.

758 Cases that cite this headnote

[4] **Patents** → Remediating defects or solving problems

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k692 Remediating defects or solving problems (Formerly 291k16.5(4))

Patent's subject matter can be proved obvious by noting that there existed at time of invention a known problem for which there was an obvious solution encompassed by patent's claims. 35 U.S.C.A. § 103.

176 Cases that cite this headnote

[5] **Patents** → Remediating defects or solving problems
Patents → Level of Ordinary Skill in the Art

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k692 Remediating defects or solving problems (Formerly 291k16.5(4))
291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k697 Level of Ordinary Skill in the Art
291k698 In general (Formerly 291k16(3))

In determining whether patent combining known elements is obvious, question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art; under correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide reason for combining the elements in the manner claimed.

[6] **Patents** → Remediating defects or solving problems
Patents → Level of Ordinary Skill in the Art

291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k682 Prior Art and Relation of Claimed Invention Thereo
291k692 Remediating defects or solving problems (Formerly 291k16.5(4))
291 Patents
291III Patentability and Validity
291III(E) Obviousness; Lack of Invention
291II(E)2 Factors Considered
291k697 Level of Ordinary Skill in the Art
291k698 In general (Formerly 291k17(1))

When there is design need or market pressure to solve a problem and there are finite number of identified, predictable solutions, person of ordinary skill has good reason to pursue the known options within his or her technical grasp, and if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense; in that instance, the fact that a combination was obvious to try might show that patent for it was obvious. 35 U.S.C.A. § 103.

592 Cases that cite this headnote

[7] **Patents** → Automobiles and vehicles

291 Patents
291III Patentability and Validity
291II(E) Obviousness; Lack of Invention
291II(E)3 Particular Fields of Invention
291k735 Automobiles and vehicles (Formerly 291k16.22)

Patent claim disclosing position-adjustable pedal assembly with electronic pedal position sensor attached to support member of pedal assembly

was invalid as obvious, in view of patent for adjustable pedal with a fixed pivot, and patent teaching a solution to wire chafing problems, namely locating the sensor on support structure; it was obvious to person of ordinary skill in the art to combine first patent with pivot-mounted pedal position sensor. 35 U.S.C.A. § 103.

[187 Cases that cite this headnote](#)

[8] **Patents** → Presence or absence of fact issues

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 6 Judgment
291 k1932 Summary Judgment
291 k1934 Presence or absence of fact issues
(Formerly 291 k323.2(2))

Where content of prior art, scope of patent claim, and level of ordinary skill in the art are not in material dispute, and obviousness of claim is apparent in light of these factors, summary judgment is appropriate. 35 U.S.C.A. § 103.

[567 Cases that cite this headnote](#)

[9] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k2091 In general; utility
(Formerly 291 k328(2))

US Patent 5,010,782, US Patent 5,063,811, US Patent 5,241,936, US Patent 5,385,068, US Patent 5,460,061, US Patent 5,819,593, US Patent 6,151,976. Cited as Prior Art.

[474 Cases that cite this headnote](#)

[10] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k2091 In general; utility
(Formerly 291 k328(2))

US Patent 6,109,241. Cited.

[11] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k2091 In general; utility
(Formerly 291 k328(2))

US Patent 6,237,565. Invalid.

[1 Cases that cite this headnote](#)

****1728 *398 Syllabus***

To control a conventional automobile's speed, the driver depresses or releases the gas pedal, which interacts with the throttle via a cable or other mechanical link. Because the pedal's position in the footwell normally cannot be adjusted, a driver wishing to be closer or farther from it must either reposition himself in the seat ****1729** or move the seat, both of which can be imperfect solutions for smaller drivers in cars with deep footwells. This prompted inventors to design and patent pedals that could be adjusted to change their locations. The Asano patent reveals a support structure whereby, when the pedal location is adjusted, one of the pedal's pivot points stays fixed. Asano is also designed so that the force necessary to depress the pedal is the same regardless of location adjustments. The Redding patent reveals a different, sliding mechanism where both the pedal and the pivot point are adjusted.

In newer cars, computer-controlled throttles do not operate through force transferred from the pedal by a mechanical link, but open and close valves in response to electronic signals. For the computer to know what is happening with the pedal, an electronic sensor must translate the mechanical operation into digital data. Inventors had obtained a number of patents for such sensors. The so-called '936 patent taught that it was preferable to detect the pedal's position in the pedal

mechanism, not in the engine, so the patent disclosed a pedal with an electronic sensor on a pivot point in the pedal assembly. The Smith patent taught that to prevent the wires connecting the sensor to the computer from chafing and wearing out, the sensor should be put on a fixed part of the pedal assembly rather than in or on the pedal's footpad. Inventors had also patented self-contained modular sensors, which can be taken off the shelf and attached to any mechanical pedal to allow it to function with a computer-controlled throttle. The '068 patent disclosed one such sensor. Chevrolet also manufactured trucks using modular sensors attached to the pedal support bracket, adjacent to the pedal and engaged with the pivot shaft about which the pedal rotates. Other patents disclose electronic sensors attached to adjustable pedal assemblies. For example, the Rixon patent locates the sensor in the pedal footpad, but is known for wire chafing.

*399 After petitioner KSR developed an adjustable pedal system for cars with cable-actuated throttles and obtained its '986 patent for the design, General Motors Corporation (GMC) chose KSR to supply adjustable pedal systems for trucks using computer-controlled throttles. To make the '986 pedal compatible with the trucks, KSR added a modular sensor to its design. Respondents (Teleflex) hold the exclusive license for the Engelgau patent, claim 4 of which discloses a position-adjustable pedal assembly with an electronic pedal position sensor attached to a fixed pivot point. Despite having denied a similar, broader claim, the U.S. Patent and Trademark Office (PTO) had allowed claim 4 because it included the limitation of a fixed pivot position, which distinguished the design from Redding's. Asano was neither included among the Engelgau patent's prior art references nor mentioned in the patent's prosecution, and the PTO did not have before it an adjustable pedal with a fixed pivot point. After learning of KSR's design for GMC, Teleflex sued for infringement, asserting that KSR's pedal system infringed the Engelgau patent's claim 4. KSR countered that claim 4 was invalid under § 103 of the Patent Act, which forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art."

Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17–18, 86 S.Ct. 684, 15 L.Ed.2d 545, set out an objective analysis for applying § 103: "[T]he scope and content of the prior art are ... determined; differences between the prior art and the **1730 claims at issue are ... ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or

nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." While the sequence of these questions might be reordered in any particular case, the factors define the controlling inquiry. However, seeking to resolve the obviousness question with more uniformity and consistency, the Federal Circuit has employed a "teaching, suggestion, or motivation" (TSM) test, under which a patent claim is only proved obvious if the prior art, the problem's nature, or the knowledge of a person having ordinary skill in the art reveals some motivation or suggestion to combine the prior art teachings.

The District Court granted KSR summary judgment. After reviewing pedal design history, the Engelgau patent's scope, and the relevant prior art, the court considered claim 4's validity, applying *Graham's* framework to determine whether under summary-judgment standards *400 KSR had demonstrated that claim 4 was obvious. The court found "little difference" between the prior art's teachings and claim 4: Asano taught everything contained in the claim except using a sensor to detect the pedal's position and transmit it to a computer controlling the throttle. That additional aspect was revealed in, e.g., the '068 patent and Chevrolet's sensors. The court then held that KSR satisfied the TSM test, reasoning (1) the state of the industry would lead inevitably to combinations of electronic sensors and adjustable pedals, (2) Rixon provided the basis for these developments, and (3) Smith taught a solution to Rixon's chafing problems by positioning the sensor on the pedal's fixed structure, which could lead to the combination of a pedal like Asano with a pedal position sensor.

Reversing, the Federal Circuit ruled the District Court had not applied the TSM test strictly enough, having failed to make findings as to the specific understanding or principle within a skilled artisan's knowledge that would have motivated one with no knowledge of the invention to attach an electronic control to the Asano assembly's support bracket. The Court of Appeals held that the District Court's recourse to the nature of the problem to be solved was insufficient because, unless the prior art references addressed the precise problem that the patentee was trying to solve, the problem would not motivate an inventor to look at those references. The appeals court found that the Asano pedal was designed to ensure that the force required to depress the pedal is the same no matter how the pedal is adjusted, whereas Engelgau sought to provide a simpler, smaller, cheaper adjustable electronic pedal. The Rixon pedal, said the court, suffered

from chafing but was not designed to solve that problem and taught nothing helpful to Engelgau's purpose. Smith, in turn, did not relate to adjustable pedals and did not necessarily go to the issue of motivation to attach the electronic control on the pedal assembly's support bracket. So interpreted, the court held, the patents would not have led a person of ordinary skill to put a sensor on an Asano-like pedal. That it might have been obvious to try that combination was likewise irrelevant. Finally, the court held that genuine issues of material fact precluded summary judgment.

Held: The Federal Circuit addressed the obviousness question in a narrow, rigid manner that is inconsistent with § 103 and this Court's precedents. KSR provided **1731 convincing evidence that mounting an available sensor on a fixed pivot point of the Asano pedal was a design step well within the grasp of a person of ordinary skill in the relevant art and that the benefit of doing so would be obvious. Its arguments, and the record, demonstrate that the Engelgau patent's claim 4 is obvious. Pp. 1739 – 1746.

*401 1. *Graham* provided an expansive and flexible approach to the obviousness question that is inconsistent with the way the Federal Circuit applied its TSM test here. Neither § 103's enactment nor *Graham's* analysis disturbed the Court's earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art. See *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 71 S.Ct. 127, 95 L.Ed. 162. Such a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. See, e.g., *United States v. Adams*, 383 U.S. 39, 50–52, 86 S.Ct. 708, 15 L.Ed.2d 572. When a work is available in one field, design incentives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, § 103 likely bars its patentability. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill. A court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. Following these principles may be difficult if the claimed subject matter involves more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. To determine whether there was an

apparent reason to combine the known elements in the way a patent claims, it will often be necessary to look to interrelated teachings of multiple patents; to the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art. To facilitate review, this analysis should be made explicit. But it need not seek out precise teachings directed to the challenged claim's specific subject matter, for a court can consider the inferences and creative steps a person of ordinary skill in the art would employ. Pp. 1739 – 1743.

(a) The TSM test captures a helpful insight: A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. Although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does. Inventions usually rely upon building blocks long since uncovered, and claimed discoveries almost necessarily will be combinations of what, in some sense, is already known. Helpful insights, *402 however, need not become rigid and mandatory formulas. If it is so applied, the TSM test is incompatible with this Court's precedents. The diversity of inventive pursuits and of modern technology counsels against confining the obviousness analysis by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasizing the importance of published articles and the explicit **1732 content of issued patents. In many fields there may be little discussion of obvious techniques or combinations, and market demand, rather than scientific literature, may often drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, for patents combining previously known elements, deprive prior inventions of their value or utility. Since the TSM test was devised, the Federal Circuit doubtless has applied it in accord with these principles in many cases. There is no necessary inconsistency between the test and the *Graham* analysis. But a court errs where, as here, it transforms general principle into a rigid rule limiting the obviousness inquiry. Pp. 1740 – 1741.

(b) The flaws in the Federal Circuit's analysis relate mostly to its narrow conception of the obviousness inquiry consequent in its application of the TSM test. The Circuit first erred in holding that courts and patent examiners should look only to the problem the patentee was trying to solve. Under the correct analysis, any need

or problem known in the field and addressed by the patent can provide a reason for combining the elements in the manner claimed. Second, the appeals court erred in assuming that a person of ordinary skill in the art attempting to solve a problem will be led only to those prior art elements designed to solve the same problem. The court wrongly concluded that because Asano's primary purpose was solving the constant ratio problem, an inventor considering how to put a sensor on an adjustable pedal would have no reason to consider putting it on the Asano pedal. It is common sense that familiar items may have obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle. Regardless of Asano's primary purpose, it provided an obvious example of an adjustable pedal with a fixed pivot point, and the prior art was replete with patents indicating that such a point was an ideal mount for a sensor. Third, the court erred in concluding that a patent claim cannot be proved obvious merely by showing that the combination of elements was obvious to try. When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of *403 ordinary skill and common sense. Finally, the court drew the wrong conclusion from the risk of courts and patent examiners falling prey to hindsight bias. Rigid preventative rules that deny recourse to common sense are neither necessary under, nor consistent with, this Court's case law. Pp. 1741 – 1743.

2. Application of the foregoing standards demonstrates that claim 4 is obvious. Pp. 1743 – 1746.

(a) The Court rejects Teleflex's argument that the Asano pivot mechanism's design prevents its combination with a sensor in the manner claim 4 describes. This argument was not raised before the District Court, and it is unclear whether it was raised before the Federal Circuit. Given the significance of the District Court's finding that combining Asano with a pivot-mounted pedal position sensor fell within claim 4's scope, it is apparent that Teleflex would have made clearer challenges if it intended to preserve this claim. Its failure to clearly raise the argument, and the appeals court's silence on the issue, lead this Court to accept the District Court's conclusion. Pp. 1743 – 1744.

**1733 (b) The District Court correctly concluded that when Engelgau designed the claim 4 subject matter, it was obvious to a person of ordinary skill in the art to

combine Asano with a pivot-mounted pedal position sensor. There then was a marketplace creating a strong incentive to convert mechanical pedals to electronic pedals, and the prior art taught a number of methods for doing so. The Federal Circuit considered the issue too narrowly by, in effect, asking whether a pedal designer writing on a blank slate would have chosen both Asano and a modular sensor similar to the ones used in the Chevrolet trucks and disclosed in the '068 patent. The proper question was whether a pedal designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to upgrading Asano with a sensor. For such a designer starting with Asano, the question was where to attach the sensor. The '936 patent taught the utility of putting the sensor on the pedal device. Smith, in turn, explained not to put the sensor on the pedal footpad, but instead on the structure. And from Rixon's known wire-chafing problems, and Smith's teaching that the pedal assemblies must not precipitate any motion in the connecting wires, the designer would know to place the sensor on a nonmoving part of the pedal structure. The most obvious such point is a pivot point. The designer, accordingly, would follow Smith in mounting the sensor there. Just as it was possible to begin with the objective to upgrade Asano to work with a computer-controlled throttle, so too was it possible to take an adjustable electronic pedal like Rixon and seek an improvement that would avoid the wire-chafing problem. Teleflex has not shown anything in the prior art that taught away from the *404 use of Asano, nor any secondary factors to dislodge the determination that claim 4 is obvious. Pp. 1744 – 1746.

3. The Court disagrees with the Federal Circuit's holding that genuine issues of material fact precluded summary judgment. The ultimate judgment of obviousness is a legal determination. *Graham*, 383 U.S., at 17, 86 S.Ct. 684. Where, as here, the prior art's content, the patent claim's scope, and the level of ordinary skill in the art are not in material dispute and the claim's obviousness is apparent, summary judgment is appropriate. Pp. 1745 – 1746.

119 Fed.Appx. 282, reversed and remanded.

KENNEDY, J., delivered the opinion for a unanimous Court.

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Opinion

Justice KENNEDY delivered the opinion of the Court.

*405 Teleflex Incorporated and its subsidiary Technology Holding Company—both referred to here as Teleflex—sued KSR International Company for patent infringement. The patent at issue, United States Patent No. 6,237,565 B1, is entitled *406 “Adjustable Pedal Assembly With Electronic Throttle Control.” Supp. App. 1. The patentee is Steven J. Engelgau, and the patent is referred to as “the Engelgau patent.” Teleflex holds the exclusive license to the patent.

Claim 4 of the Engelgau patent describes a mechanism for combining an electronic sensor with an adjustable automobile pedal so the pedal’s position can be transmitted to a computer that controls the throttle in the vehicle’s engine. When Teleflex accused KSR of infringing the Engelgau patent by adding an electronic sensor to one of KSR’s previously designed pedals, KSR countered that claim 4 was invalid under the Patent Act, 35 U.S.C. § 103 (2000 ed. and Supp. IV), because its subject matter was obvious.

Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), the Court set out a framework for applying the statutory language of § 103, language itself based on the logic of the earlier decision in *Hoichkiss v. Greenwood*, 11 How. 248, 13 L.Ed. 683 (1851), and its progeny. See 383 U.S., at 15–17, 86 S.Ct. 684. The analysis is objective:

“Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Id.*, at 17–18, 86 S.Ct. 684.

*407 While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid under § 103.

Seeking to resolve the question of obviousness with more uniformity and consistency, the Court of Appeals for the Federal Circuit has employed an approach referred to by the parties as the “teaching, suggestion, or motivation” test (TSM test), under which a patent claim is only proved obvious if “some motivation or suggestion to combine the prior art teachings” can be found in the prior art, the nature of the problem, or the knowledge of a person having ordinary skill in the art. See, e.g., *Al-Site Corp. v. VSI Int’l, Inc.*, 174 F.3d 1308, 1323–1324 (C.A.Fed.1999). KSR challenges that **1735 test, or at least its application in this case. See 119 Fed.Appx. 282, 286–290 (C.A.Fed.2005). Because the Court of Appeals addressed the question of obviousness in a manner contrary to § 103 and our precedents, we granted certiorari, 548 U.S. 902, 126 S.Ct. 2965, 165 L.Ed.2d 949 (2006). We now reverse.

I

A

In car engines without computer-controlled throttles, the accelerator pedal interacts with the throttle via cable or other mechanical link. The pedal arm acts as a lever rotating around a pivot point. In a cable-actuated throttle control the rotation caused by pushing down the pedal pulls a cable, which in turn pulls open valves in the carburetor or fuel injection unit. The wider the valves open, the more fuel and air are released, causing combustion to increase and the car to accelerate. When the driver takes his foot off the pedal, the opposite occurs as the cable is released and the valves slide closed.

In the 1990's it became more common to install computers in cars to control engine operation. Computer-controlled *408 throttles open and close valves in response to electronic signals, not through force transferred from the pedal by a mechanical link. Constant, delicate adjustments of air and fuel mixture are possible. The computer's rapid processing of factors beyond the pedal's position improves fuel efficiency and engine performance.

For a computer-controlled throttle to respond to a driver's operation of the car, the computer must know what is happening with the pedal. A cable or mechanical link does not suffice for this purpose; at some point, an electronic sensor is necessary to translate the mechanical operation into digital data the computer can understand.

Before discussing sensors further we turn to the mechanical design of the pedal itself. In the traditional design a pedal can be pushed down or released but cannot have its position in the footwell adjusted by sliding the pedal forward or back. As a result, a driver who wishes to be closer or farther from the pedal must either reposition himself in the driver's seat or move the seat in some way. In cars with deep footwells these are imperfect solutions for drivers of smaller stature. To solve the problem, inventors, beginning in the 1970's, designed pedals that could be adjusted to change their location in the footwell. Important for this case are two adjustable pedals disclosed in U.S. Patent Nos. 5,010,782 (filed July 28, 1989) (Asano) and 5,460,061 (filed Sept. 17, 1993) (Redding). The Asano patent reveals a support structure that houses the pedal so that even when the pedal location is adjusted relative to the driver, one of the pedal's pivot points stays fixed. The pedal is also designed so that the force necessary to push the pedal down is the same regardless of adjustments to its location. The Redding patent reveals a different, sliding mechanism where both the pedal and the pivot point are adjusted.

We return to sensors. Well before Engelgau applied for

his challenged patent, some inventors had obtained patents involving electronic pedal sensors for computer-controlled *409 throttles. These inventions, such as the device disclosed in U.S. Patent No. 5,241,936 (filed Sept. 9, 1991) ('936), taught that it was preferable to detect the pedal's position in the pedal assembly, not in the engine. The '936 patent disclosed a pedal with an electronic sensor on a pivot point in the pedal assembly. U.S. Patent No. 5,063,811 (filed July 9, 1990) (Smith) taught that to prevent the **1736 wires connecting the sensor to the computer from chafing and wearing out, and to avoid grime and damage from the driver's foot, the sensor should be put on a fixed part of the pedal assembly rather than in or on the pedal's footpad.

In addition to patents for pedals with integrated sensors inventors obtained patents for self-contained modular sensors. A modular sensor is designed independently of a given pedal so that it can be taken off the shelf and attached to mechanical pedals of various sorts, enabling the pedals to be used in automobiles with computer-controlled throttles. One such sensor was disclosed in U.S. Patent No. 5,385,068 (filed Dec. 18, 1992) ('068). In 1994, Chevrolet manufactured a line of trucks using modular sensors "attached to the pedal assembly support bracket, adjacent to the pedal and engaged with the pivot shaft about which the pedal rotates in operation." 298 F.Supp.2d 581, 589 (E.D.Mich.2003).

The prior art contained patents involving the placement of sensors on adjustable pedals as well. For example, U.S. Patent No. 5,819,593 (filed Aug. 17, 1995) (Rixon) discloses an adjustable pedal assembly with an electronic sensor for detecting the pedal's position. In the Rixon pedal the sensor is located in the pedal footpad. The Rixon pedal was known to suffer from wire chafing when the pedal was depressed and released.

This short account of pedal and sensor technology leads to the instant case.

B

KSR, a Canadian company, manufactures and supplies auto parts, including pedal systems. Ford Motor Company hired *410 KSR in 1998 to supply an adjustable pedal system for various lines of automobiles with cable-actuated throttle controls. KSR developed an adjustable mechanical pedal for Ford and obtained U.S. Patent No. 6,151,986 (filed July 16, 1999) ('986) for the

design. In 2000, KSR was chosen by General Motors Corporation (GMC or GM) to supply adjustable pedal systems for Chevrolet and GMC light trucks that used engines with computer-controlled throttles. To make the '986 pedal compatible with the trucks, KSR merely took that design and added a modular sensor.

Teleflex is a rival to KSR in the design and manufacture of adjustable pedals. As noted, it is the exclusive licensee of the Engelgau patent. Engelgau filed the patent application on August 22, 2000, as a continuation of a previous application for U.S. Patent No. 6,109,241, which was filed on January 26, 1999. He has sworn he invented the patent's subject matter on February 14, 1998. The Engelgau patent discloses an adjustable electronic pedal described in the specification as a "simplified vehicle control pedal assembly that is less expensive, and which uses fewer parts and is easier to package within the vehicle." Engelgau, col. 2, ll. 2–5, Supp. App. 6. Claim 4 of the patent, at issue here, describes:

"A vehicle control pedal apparatus comprising:

"a support adapted to be mounted to a vehicle structure;

"an adjustable pedal assembly having a pedal arm moveable in for[e] and aft directions with respect to said support;

"a pivot for pivotally supporting said adjustable pedal assembly with respect to said support and defining a pivot axis; and

"an electronic control attached to said support for controlling a vehicle system;

"said apparatus characterized by said electronic control being responsive to said pivot for providing a signal that corresponds to pedal arm position as said pedal arm pivots *411 about said pivot **1737 axis between rest and applied positions wherein the position of said pivot remains constant while said pedal arm moves in fore and aft directions with respect to said pivot." *Id.*, col. 6, ll. 17–36, Supp. App. 8 (diagram numbers omitted).

We agree with the District Court that the claim discloses "a position-adjustable pedal assembly with an electronic pedal position sensor attached to the support member of the pedal assembly. Attaching the sensor to the support member allows the sensor to remain in a fixed position while the driver adjusts the pedal." 298 F.Supp.2d, at 586–587.

Before issuing the Engelgau patent the U.S. Patent and Trademark Office (PTO) rejected one of the patent claims

that was similar to, but broader than, the present claim 4. The claim did not include the requirement that the sensor be placed on a fixed pivot point. The PTO concluded the claim was an obvious combination of the prior art disclosed in Redding and Smith, explaining:

" 'Since the prior ar[t] references are from the field of endeavor, the purpose disclosed ... would have been recognized in the pertinent art of Redding. Therefore it would have been obvious ... to provide the device of Redding with the ... means attached to a support member as taught by Smith.' " *Id.*, at 595.

In other words Redding provided an example of an adjustable pedal, and Smith explained how to mount a sensor on a pedal's support structure, and the rejected patent claim merely put these two teachings together.

Although the broader claim was rejected, claim 4 was later allowed because it included the limitation of a fixed pivot point, which distinguished the design from Redding's. *Ibid.* Engelgau had not included Asano among the prior art references, and Asano was not mentioned in the patent's prosecution. Thus, the PTO did not have before it an adjustable *412 pedal with a fixed pivot point. The patent issued on May 29, 2001, and was assigned to Teleflex.

Upon learning of KSR's design for GM, Teleflex sent a warning letter informing KSR that its proposal would violate the Engelgau patent. " 'Teleflex believes that any supplier of a product that combines an adjustable pedal with an electronic throttle control necessarily employs technology covered by one or more' " of Teleflex's patents. *Id.*, at 585. KSR refused to enter a royalty arrangement with Teleflex; so Teleflex sued for infringement, asserting KSR's pedal infringed the Engelgau patent and two other patents. *Ibid.* Teleflex later abandoned its claims regarding the other patents and dedicated the patents to the public. The remaining contention was that KSR's pedal system for GM infringed claim 4 of the Engelgau patent. Teleflex has not argued that the other three claims of the patent are infringed by KSR's pedal, nor has Teleflex argued that the mechanical adjustable pedal designed by KSR for Ford infringed any of its patents.

C

The District Court granted summary judgment in KSR's favor. After reviewing the pertinent history of pedal design, the scope of the Engelgau patent, and the relevant

prior art, the court considered the validity of the contested claim. By direction of 35 U.S.C. § 282, an issued patent is presumed valid. The District Court applied *Graham's* framework to determine whether under summary-judgment standards KSR had overcome the presumption and demonstrated that claim 4 was obvious in light of the prior art in existence when **1738 the claimed subject matter was invented. See § 103(a).

The District Court determined, in light of the expert testimony and the parties' stipulations, that the level of ordinary skill in pedal design was "an undergraduate degree in mechanical engineering (or an equivalent amount of industry experience) [and] familiarity with pedal control systems for *413 vehicles." 298 F.Supp.2d, at 590. The court then set forth the relevant prior art, including the patents and pedal designs described above.

Following *Graham's* direction, the court compared the teachings of the prior art to the claims of *Engelgau*. It found "little difference." 298 F.Supp.2d, at 590. Asano taught everything contained in claim 4 except the use of a sensor to detect the pedal's position and transmit it to the computer controlling the throttle. That additional aspect was revealed in sources such as the '068 patent and the sensors used by Chevrolet.

Under the controlling cases from the Court of Appeals for the Federal Circuit, however, the District Court was not permitted to stop there. The court was required also to apply the TSM test. The District Court held KSR had satisfied the test. It reasoned (1) the state of the industry would lead inevitably to combinations of electronic sensors and adjustable pedals, (2) Rixon provided the basis for these developments, and (3) Smith taught a solution to the wire-chafing problems in Rixon, namely, locating the sensor on the fixed structure of the pedal. This could lead to the combination of Asano, or a pedal like it, with a pedal position sensor.

The conclusion that the Engelgau design was obvious was supported, in the District Court's view, by the PTO's rejection of the broader version of claim 4. Had Engelgau included Asano in his patent application, it reasoned, the PTO would have found claim 4 to be an obvious combination of Asano and Smith, as it had found the broader version an obvious combination of Redding and Smith. As a final matter, the District Court held that the secondary factor of Teleflex's commercial success with pedals based on Engelgau's design did not alter its conclusion. The District Court granted summary judgment for KSR.

With principal reliance on the TSM test, the Court of Appeals reversed. It ruled the District Court had not been strict enough in applying the test, having failed to make *414 " 'finding[s] as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention' ... to attach an electronic control to the support bracket of the Asano assembly." 119 Fed.Appx., at 288 (quoting *In re Kotzab*, 217 F.3d 1365, 1371 (C.A.Fed.2000); brackets in original). The Court of Appeals held that the District Court was incorrect that the nature of the problem to be solved satisfied this requirement because unless the "prior art references address[ed] the precise problem that the patentee was trying to solve," the problem would not motivate an inventor to look at those references. 119 Fed.Appx., at 288.

Here, the Court of Appeals found, the Asano pedal was designed to solve the " 'constant ratio problem' "—that is, to ensure that the force required to depress the pedal is the same no matter how the pedal is adjusted—whereas Engelgau sought to provide a simpler, smaller, cheaper adjustable electronic pedal. *Ibid.* As for Rixon, the court explained, that pedal suffered from the problem of wire chafing but was not designed to solve it. In the court's view Rixon did not teach anything helpful to Engelgau's purpose. Smith, in turn, did not relate to adjustable pedals and did not "necessarily go to the issue of motivation **1739 to attach the electronic control on the support bracket of the pedal assembly." *Ibid.* When the patents were interpreted in this way, the Court of Appeals held, they would not have led a person of ordinary skill to put a sensor on the sort of pedal described in Asano.

That it might have been obvious to try the combination of Asano and a sensor was likewise irrelevant, in the court's view, because " '[o]bvious to try' has long been held not to constitute obviousness.' " *Id.*, at 289 (quoting *In re Deuel*, 51 F.3d 1552, 1559 (C.A.Fed.1995)).

The Court of Appeals also faulted the District Court's consideration of the PTO's rejection of the broader version of claim 4. The District Court's role, the Court of Appeals explained, was not to speculate regarding what the PTO might *415 have done had the Engelgau patent mentioned Asano. Rather, the court held, the District Court was obliged first to presume that the issued patent was valid and then to render its own independent judgment of obviousness based on a review of the prior art. The fact that the PTO had rejected the broader version of claim 4, the Court of Appeals said, had no place in that analysis.

The Court of Appeals further held that genuine issues of material fact precluded summary judgment. Teleflex had proffered statements from one expert that claim 4 “‘was a simple, elegant, and novel combination of features.’” 119 Fed.Appx., at 290, compared to Rixon, and from another expert that claim 4 was nonobvious because, unlike in Rixon, the sensor was mounted on the support bracket rather than the pedal itself. This evidence, the court concluded, sufficed to require a trial.

II

A

We begin by rejecting the rigid approach of the Court of Appeals. Throughout this Court’s engagement with the question of obviousness, our cases have set forth an expansive and flexible approach inconsistent with the way the Court of Appeals applied its TSM test here. To be sure, *Graham* recognized the need for “uniformity and definiteness.” 383 U.S., at 18, 86 S.Ct. 684. Yet the principles laid down in *Graham* reaffirmed the “functional approach” of *Hotchkiss*, 11 How. 248, 13 L.Ed. 683. See 383 U.S., at 12, 86 S.Ct. 684. To this end, *Graham* set forth a broad inquiry and invited courts, where appropriate, to look at any secondary considerations that would prove instructive. *Id.*, at 17, 86 S.Ct. 684.

Neither the enactment of § 103 nor the analysis in *Graham* disturbed this Court’s earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art. For over a half century, the Court has held that a “patent for a combination *416 which only unites old elements with no change in their respective functions ... obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.” *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152–153, 71 S.Ct. 127, 95 L.Ed. 162 (1950). This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. Three cases decided after *Graham* illustrate the application of this doctrine.

In *United States v. Adams*, 383 U.S. 39, 40, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966), a companion case to *Graham*, the Court considered the obviousness of a “wet battery” that varied from prior designs in two ways: **1740 It contained water, rather than the acids conventionally employed in storage batteries; and its electrodes were magnesium and cuprous chloride, rather than zinc and silver chloride. The Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. 383 U.S., at 50–51, 86 S.Ct. 708. It nevertheless rejected the Government’s claim that Adams’ battery was obvious. The Court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious. *Id.*, at 51–52, 86 S.Ct. 708. When Adams designed his battery, the prior art warned that risks were involved in using the types of electrodes he employed. The fact that the elements worked together in an unexpected and fruitful manner supported the conclusion that Adams’ design was not obvious to those skilled in the art.

In *Anderson’s–Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 90 S.Ct. 305, 24 L.Ed.2d 258 (1969), the Court elaborated on this approach. The subject matter of the patent before the Court was a device combining two pre-existing elements: a radiant-heat *417 burner and a paving machine. The device, the Court concluded, did not create some new synergy: The radiant-heat burner functioned just as a burner was expected to function; and the paving machine did the same. The two in combination did no more than they would in separate, sequential operation. *Id.*, at 60–62, 90 S.Ct. 305. In those circumstances, “while the combination of old elements performed a useful function, it added nothing to the nature and quality of the radiant-heat burner already patented,” and the patent failed under § 103. *Id.*, at 62, 90 S.Ct. 305 (footnote omitted).

Finally, in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 96 S.Ct. 1532, 47 L.Ed.2d 784 (1976), the Court derived from the precedents the conclusion that when a patent “simply arranges old elements with each performing the same function it had been known to perform” and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.*, at 282, 96 S.Ct. 1532.

^[1] The principles underlying these cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a

work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's-Black Rock* are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. *418 Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having **1741 ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

B

[2] When it first established the requirement of demonstrating a teaching, suggestion, or motivation to combine known elements in order to show that the combination is obvious, the Court of Customs and Patent Appeals captured a helpful insight. See *Application of Bergel*, 48 C.C.P.A. 1102, 292 F.2d 955, 956–957 (1961). As is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by

demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity *419 will be combinations of what, in some sense, is already known.

Helpful insights, however, need not become rigid and mandatory formulas; and when it is so applied, the TSM test is incompatible with our precedents. The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

In the years since the Court of Customs and Patent Appeals set forth the essence of the TSM test, the Court of Appeals no doubt has applied the test in accord with these principles in many cases. There is no necessary inconsistency between the idea underlying the TSM test and the *Graham* analysis. But when a court transforms the general principle into a rigid rule that limits the obviousness inquiry, as the Court of Appeals did here, it errs.

C

[3] [4] The flaws in the analysis of the Court of Appeals relate for the most part to the court's narrow conception of the obviousness inquiry reflected in its application of the TSM test. In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the **1742 patentee controls. What matters is the objective reach of

the claim. If the claim extends to what is obvious, it is invalid under § 103. One of the ways *420 in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.

¹⁵¹ The first error of the Court of Appeals in this case was to foreclose this reasoning by holding that courts and patent examiners should look only to the problem the patentee was trying to solve. 119 Fed.Appx., at 288. The Court of Appeals failed to recognize that the problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

The second error of the Court of Appeals lay in its assumption that a person of ordinary skill attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem. *Ibid.* The primary purpose of Asano was solving the constant ratio problem; so, the court concluded, an inventor considering how to put a sensor on an adjustable pedal would have no reason to consider putting it on the Asano pedal. *Ibid.* Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle. Regardless of Asano's primary purpose, the design provided an obvious example of an adjustable pedal with a fixed pivot point; and the prior art was replete with patents indicating that a fixed pivot point was an ideal mount for a sensor. The idea that a designer hoping to make an adjustable electronic pedal would ignore Asano because Asano was designed to solve the constant *421 ratio problem makes little sense. A person of ordinary skill is also a person of ordinary creativity, not an automaton.

¹⁶¹ The same constricted analysis led the Court of Appeals to conclude, in error, that a patent claim cannot be proved obvious merely by showing that the combination of elements was "[o]bvious to try." *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to

the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

The Court of Appeals, finally, drew the wrong conclusion from the risk of courts and patent examiners falling prey to hindsight bias. A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U.S., at 36, 86 S.Ct. 684 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "guard against slipping into use of hindsight" (quoting *Monroe Auto Equip. Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (C.A.6 1964))). Rigid preventative rules that deny factfinders recourse to common sense, however, are neither **1743 necessary under our case law nor consistent with it.

We note the Court of Appeals has since elaborated a broader conception of the TSM test than was applied in the instant matter. See, e.g., *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (C.A.Fed.2006) ("Our suggestion test is in actuality quite flexible and not only permits, but *requires*, consideration of common knowledge and common sense"); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1291 (2006) ("There is flexibility in our obviousness jurisprudence because a motivation *422 may be found *implicitly* in the prior art. We do not have a rigid test that requires an actual teaching to combine ..."). Those decisions, of course, are not now before us and do not correct the errors of law made by the Court of Appeals in this case. The extent to which they may describe an analysis more consistent with our earlier precedents and our decision here is a matter for the Court of Appeals to consider in its future cases. What we hold is that the fundamental misunderstandings identified above led the Court of Appeals in this case to apply a test inconsistent with our patent law decisions.

III

¹⁷¹ When we apply the standards we have explained to the instant facts, claim 4 must be found obvious. We agree with and adopt the District Court's recitation of the relevant prior art and its determination of the level of ordinary skill in the field. As did the District Court, we see little difference between the teachings of Asano and

Smith and the adjustable electronic pedal disclosed in claim 4 of the Engelgau patent. A person having ordinary skill in the art could have combined Asano with a pedal position sensor in a fashion encompassed by claim 4, and would have seen the benefits of doing so.

A

Teleflex argues in passing that the Asano pedal cannot be combined with a sensor in the manner described by claim 4 because of the design of Asano's pivot mechanisms. See Brief for Respondents 48–49, and n. 17. Therefore, Teleflex reasons, even if adding a sensor to Asano was obvious, that does not establish that claim 4 encompasses obvious subject matter. This argument was not, however, raised before the District Court. There Teleflex was content to assert only that the problem motivating the invention claimed by the Engelgau patent would not lead to the solution of combining Asano with a sensor. See Teleflex's Response to KSR's Motion *423 for Summary Judgment of Invalidity in No. 02–74586 (ED Mich.), pp. 18–20, App. 144a–146a. It is also unclear whether the current argument was raised before the Court of Appeals, where Teleflex advanced the nonspecific, conclusory contention that combining Asano with a sensor would not satisfy the limitations of claim 4. See Brief for Plaintiffs–Appellants in No. 04–1152 (CA Fed.), pp. 42–44. Teleflex's own expert declarations, moreover, do not support the point Teleflex now raises. See Declaration of Clark J. Radcliffe, Ph.D., Supp. App. 204–207; Declaration of Timothy L. Andresen, *id.*, at 208–210. The only statement in either declaration that might bear on the argument is found in the Radcliffe declaration:

“Asano ... and the Rixon ... are complex mechanical linkage-based devices that are expensive to produce and assemble and difficult to package. It is exactly these difficulties with prior art designs that [Engelgau] resolves. The use of an adjustable pedal with a single pivot reflecting pedal position combined with an electronic control mounted between **1744 the support and the adjustment assembly at that pivot was a simple, elegant, and novel combination of features in the Engelgau '565 patent.” *Id.*, at 206, ¶ 16.

Read in the context of the declaration as a whole this is best interpreted to mean that Asano could not be used to solve “[t]he problem addressed by Engelgau '565[:] to provide a less expensive, more quickly assembled, and smaller package adjustable pedal assembly with electronic control.” *Id.*, at 205, ¶ 10.

The District Court found that combining Asano with a pivot-mounted pedal position sensor fell within the scope of claim 4. 298 F.Supp.2d, at 592–593. Given the significance of that finding to the District Court's judgment, it is apparent that Teleflex would have made clearer challenges to it if it intended to preserve this claim. In light of Teleflex's failure *424 to raise the argument in a clear fashion, and the silence of the Court of Appeals on the issue, we take the District Court's conclusion on the point to be correct.

B

The District Court was correct to conclude that, as of the time Engelgau designed the subject matter in claim 4, it was obvious to a person of ordinary skill to combine Asano with a pivot-mounted pedal position sensor. There then existed a marketplace that created a strong incentive to convert mechanical pedals to electronic pedals, and the prior art taught a number of methods for achieving this advance. The Court of Appeals considered the issue too narrowly by, in effect, asking whether a pedal designer writing on a blank slate would have chosen both Asano and a modular sensor similar to the ones used in the Chevrolet truckline and disclosed in the '068 patent. The District Court employed this narrow inquiry as well, though it reached the correct result nevertheless. The proper question to have asked was whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading Asano with a sensor.

In automotive design, as in many other fields, the interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.

For a designer starting with Asano, the question was where to attach the sensor. The consequent legal question, then, is whether a pedal designer of ordinary skill starting with Asano would have found it obvious to put the sensor on *425 a fixed pivot point. The prior art discussed above leads us to the conclusion that attaching the sensor where

both KSR and Engelgau put it would have been obvious to a person of ordinary skill.

The '936 patent taught the utility of putting the sensor on the pedal device, not in the engine. Smith, in turn, explained to put the sensor not on the pedal's footpad but instead on its support structure. And from the known wire-chafing problems of Rixon, and Smith's teaching that "the pedal assemblies must not precipitate any motion in the connecting wires," Smith, col. 1, ll. 35–37, Supp. App. 274, the designer would know to place the sensor on a nonmoving part of the pedal structure. The most obvious nonmoving point on the structure from which a sensor can easily **1745 detect the pedal's position is a pivot point. The designer, accordingly, would follow Smith in mounting the sensor on a pivot, thereby designing an adjustable electronic pedal covered by claim 4.

Just as it was possible to begin with the objective to upgrade Asano to work with a computer-controlled throttle, so too was it possible to take an adjustable electronic pedal like Rixon and seek an improvement that would avoid the wire-chafing problem. Following similar steps to those just explained, a designer would learn from Smith to avoid sensor movement and would come, thereby, to Asano because Asano disclosed an adjustable pedal with a fixed pivot.

Teleflex indirectly argues that the prior art taught away from attaching a sensor to Asano because Asano in its view is bulky, complex, and expensive. The only evidence Teleflex marshals in support of this argument, however, is the Radcliffe declaration, which merely indicates that Asano would not have solved Engelgau's goal of making a small, simple, and inexpensive pedal. What the declaration does not indicate is that Asano was somehow so flawed that there was no reason to upgrade it, or pedals like it, to be compatible with modern engines. Indeed, Teleflex's own declarations *426 refute this conclusion. Dr. Radcliffe states that Rixon suffered from the same bulk and complexity as did Asano. See *id.*, at 206. Teleflex's other expert, however, explained that Rixon was itself designed by adding a sensor to a pre-existing mechanical pedal. See *id.*, at 209. If Rixon's base pedal was not too flawed to upgrade, then Dr. Radcliffe's declaration does not show Asano was either. Teleflex may have made a plausible argument that Asano is inefficient as compared to Engelgau's preferred embodiment, but to judge Asano against Engelgau would be to engage in the very hindsight bias Teleflex rightly urges must be avoided. Accordingly, Teleflex has not shown anything in the prior art that taught away from the use of Asano.

Like the District Court, finally, we conclude Teleflex has shown no secondary factors to dislodge the determination that claim 4 is obvious. Proper application of *Graham* and our other precedents to these facts therefore leads to the conclusion that claim 4 encompassed obvious subject matter. As a result, the claim fails to meet the requirement of § 103.

We need not reach the question whether the failure to disclose Asano during the prosecution of Engelgau voids the presumption of validity given to issued patents, for claim 4 is obvious despite the presumption. We nevertheless think it appropriate to note that the rationale underlying the presumption—that the PTO, in its expertise, has approved the claim—seems much diminished here.

IV

¹⁸¹ A separate ground the Court of Appeals gave for reversing the order for summary judgment was the existence of a dispute over an issue of material fact. We disagree with the Court of Appeals on this point as well. To the extent the court understood the *Graham* approach to exclude the possibility of summary judgment when an expert provides a conclusory affidavit addressing the question of obviousness, it misunderstood the role expert testimony plays in the analysis. *427 In considering summary judgment on that question the district court can and should take into account expert testimony, which may resolve or keep open certain questions of fact. That is not the end of the issue, however. The ultimate judgment of obviousness is a legal determination. *Graham*, 383 U.S., at 17, 86 S.Ct. 684. Where, as here, the content of the prior art, the scope of the patent **1746 claim, and the level of ordinary skill in the art are not in material dispute, and the obviousness of the claim is apparent in light of these factors, summary judgment is appropriate. Nothing in the declarations proffered by Teleflex prevented the District Court from reaching the careful conclusions underlying its order for summary judgment in this case.

* * *

We build and create by bringing to the tangible and

palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more. And as progress beginning from higher levels of achievement is expected in the normal course, the results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts. See [U.S. Const., Art. I, § 8, cl. 8](#). These premises led to the bar on patents claiming obvious subject matter established in *Hotchkiss* and codified in [§ 103](#). Application of the bar must not be confined within a test or formulation too constrained to serve its purpose.

KSR provided convincing evidence that mounting a modular sensor on a fixed pivot point of the Asano pedal was a design step well within the grasp of a person of

ordinary skill in the relevant art. Its arguments, and the record, demonstrate that claim 4 of the Engelgau patent is obvious. In rejecting the District Court's rulings, the Court of Appeals *428 analyzed the issue in a narrow, rigid manner inconsistent with [§ 103](#) and our precedents. The judgment of the Court of Appeals is reversed, and the case is remanded for further proceedings consistent with this opinion.


It is so ordered.

All Citations

550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385, 07 Cal. Daily Op. Serv. 4654, 20 Fla. L. Weekly Fed. S 248

Footnotes

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by *In re Fosamax (Alendronate Sodium) Products Liability Litigation*, 3rd Cir.(N.J.), March 22, 2017

116 S.Ct. 1384
Supreme Court of the United States

Herbert MARKMAN and Positek, Inc.,
Petitioners,
v.
WESTVIEW INSTRUMENTS, INC. and
Althon Enterprises, Inc.

No. 95–26.
|
Argued Jan. 8, 1996.
|
Decided April 23, 1996.

Synopsis

Holder of patent for inventory control method for use in dry cleaning business brought patent infringement action against competitor. The United States District Court for the Eastern District of Pennsylvania, *Marvin Katz, J.*, entered judgment as matter of law for competitor, despite jury's finding of infringement. The Court of Appeals for the Federal Circuit, *52 F.3d 967*, affirmed, ruling that interpretation of patent's claim terms was exclusive province of court. Certiorari was granted. The Supreme Court, Justice *Souter*, held that: (1) patent infringement actions descended from actions at law, such that Seventh Amendment required trial by jury; (2) common-law practice at time Seventh Amendment was adopted did not require interpretation of claims, or terms of art, by jury rather than judge; and (3) construction of patent, including terms of art within claim, was exclusively within province of court, in view of existing precedent, suitability of interpretation issues for determination by judge, and importance of uniformity in treatment of given patent.

Affirmed.

West Headnotes (14)

[1] Patents—Assertion of Claims

Patents—Specifications and Drawings; Written Description

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k911 In general
(Formerly 291k101(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k101(4))

Patent must describe exact scope of invention and its manufacture to secure to patentee all to which patentee is entitled, and to apprise public of what is still open to them; these objectives are served by both patent specification, which describes invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use invention, and patent's claims, which particularly point out and distinctly claim subject matter which applicant regards as invention. *35 U.S.C.A. § 112*.

892 Cases that cite this headnote

[2] Patents—Assertion of Claims

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k911 In general
(Formerly 291k101(1))

Patent claim defines scope of patent grant, and functions to forbid not only exact copies of invention, but products that go to heart of invention yet avoid literal language of claim by making noncritical change.

143 Cases that cite this headnote

[3] **Patents** → Language of claims in general
Patents → In general; comparison with patent claims

291Patents
291VConstruction and Operation of Patents
291V(A)In General
291k1314Claims and Limitations; Language of Patent
291k1316Language of claims in general (Formerly 291k101(2))
291Patents
291VIIPatent Infringement
291VII(A)In General
291k1554Substantial Identity of Subject Matter
291k1555In general; comparison with patent claims (Formerly 291k226.6)

Victory in patent infringement suit requires finding that patent claim covers alleged infringer's product or process, which in turn necessitates determination of what words in claim mean. 35 U.S.C.A. § 271(a).

816 Cases that cite this headnote

[4] **Jury** → Nature of Cause of Action or Issue in General
Jury → Legal or Equitable Actions or Issues

230Jury
230IIRight to Trial by Jury
230k12Nature of Cause of Action or Issue in General
230k12(1)In general
230Jury
230IIRight to Trial by Jury
230k13Legal or Equitable Actions or Issues
230k13(1)In general

Under "historical test" for determining right to jury trial under Seventh Amendment, court asks first whether it is dealing with cause of action that either was tried at law at time amendment was adopted or was at least analogous to action that was tried at law at that time; if action in question belongs in law category, court then asks whether particular trial decision must fall to jury in order to preserve substance of common-law right as it existed in 1791. U.S.C.A. Const.Amend. 7.

61 Cases that cite this headnote

[5] **Jury** → Legal or Equitable Actions or Issues

230Jury
230IIRight to Trial by Jury
230k13Legal or Equitable Actions or Issues
230k13(1)In general

In determining whether party is entitled to jury trial under Seventh Amendment, statutory action is first compared to 18th-century actions brought in courts of England prior to merger of courts of law and equity. U.S.C.A. Const.Amend. 7.

17 Cases that cite this headnote

[6] **Jury** → Patent and copyright cases
Patents → In general; nature and grounds

230Jury
230IIRight to Trial by Jury
230k14Particular Actions and Proceedings
230k14(1.1)Patent and copyright cases
291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)1In General
291k1691In general; nature and grounds (Formerly 291k280)

Modern patent infringement action descended from infringement actions tried at law in 18th century; thus, Seventh Amendment requires that patent infringement cases today be tried to jury, as their predecessors were more than two centuries ago. U.S.C.A. Const.Amend. 7.

58 Cases that cite this headnote

[7] **Jury** → Nature of Cause of Action or Issue in General

230Jury
230IIRight to Trial by Jury
230k12Nature of Cause of Action or Issue in General
230k12(1)In general

Whether Seventh Amendment requires that particular issue in jury trial be determined by jury depends on whether jury must shoulder this responsibility as necessary to preserve substance of common-law right of trial by jury; only those incidents which are regarded as fundamental, as inherent in and of essence of system of trial by jury, are placed beyond reach of legislature. [U.S.C.A. Const.Amend. 7.](#)

[34 Cases that cite this headnote](#)

[8] [Jury](#) → Nature of Cause of Action or Issue in General

230Jury
230IIRight to Trial by Jury
230k12Nature of Cause of Action or Issue in General
230k12(1)In general

In evaluating substance of common-law right, for purpose of determining whether Seventh Amendment requires that particular issue in jury trial be determined by jury, court should use historical method, similar to characterizing suits and actions within which issue arises; where there is no exact antecedent, best hope lies in comparing modern practice to earlier ones whose allocation to court or jury is known, seeking best analogy that can be drawn between old and new. [U.S.C.A. Const.Amend. 7.](#)

[20 Cases that cite this headnote](#)

[9] [Jury](#) → Patent and copyright cases

230Jury
230IIRight to Trial by Jury
230k14Particular Actions and Proceedings
230k14(1.1)Patent and copyright cases

Seventh Amendment did not require that jury, rather than judge, construe claims in patent and, particularly, terms of art, as common-law practice at time Seventh Amendment was adopted did not support patentee's assertion that jury interpreted patent claims at that time;

closest historical analogy was to construction of specifications for which there was no established jury practice, and judges, not jury, ordinarily construed written documents. [U.S.C.A. Const.Amend. 7.](#)

[217 Cases that cite this headnote](#)

[10] [Patents](#) → Questions of law or fact

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)4Trial, Hearing, and Determination
291k1848Questions of law or fact
(Formerly 291k314(5), 291k165(1), 291k101(1))

Construction of patent, including terms of art within claim, is exclusively within province of court, not jury, in view of existing precedent, suitability of interpretation issues for determination by judge, and importance of uniformity in treatment of given patent.

[1586 Cases that cite this headnote](#)

[11] [Patents](#) → Questions of law or fact

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)4Trial, Hearing, and Determination
291k1848Questions of law or fact
(Formerly 291k101(2))

Patent construction is special occupation, requiring, like all others, special training and practice; judge, from training and discipline, is more likely to give proper interpretation to such instruments than jury, and judge is, therefore, more likely to be right, in performing such duty, than jury can be expected to be.

[58 Cases that cite this headnote](#)

[12] **Patents** → Questions of law or fact

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 4 Trial, Hearing, and Determination
291k1848 Questions of law or fact
(Formerly 291k101(2))

Although question of meaning of term of art in patent claim is subject of testimony requiring credibility determinations, such meaning is more properly determined by judge than jury, as any credibility determinations will be subsumed within necessarily sophisticated analysis of whole document, required by standard construction rule that term can be defined only in way that comports with instrument as whole; jury's capabilities to evaluate demeanor, to sense mainsprings of human conduct, or to reflect community standards, are much less significant than trained ability to evaluate testimony in relation to overall structure of patent.

[628 Cases that cite this headnote](#)

[13] **Patents** → Questions of law or fact

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 4 Trial, Hearing, and Determination
291k1848 Questions of law or fact
(Formerly 291k165(1), 291k101(2))

Importance of uniformity in treatment of given patent supported allocation of all issues of patent claim construction, including construction of terms of art, to court rather than jury; whereas issue preclusion could not be asserted against new and independent infringement defendants, treating interpretive issues as purely legal would promote intrajurisdictional certainty through application of stare decisis.

[1668 Cases that cite this headnote](#)

[14] **Patents** → Reissue

291 Patents
291 X Patents Enumerated
291k2094 Reissue
(Formerly 291k328(4))

[US Patent RE33,054](#). Reissue Patent Cited.

[86 Cases that cite this headnote](#)

****1386 *370 Syllabus***

Petitioner Markman owns the patent to a system that tracks clothing through the dry-cleaning process using a keyboard and data processor to generate transaction records, including a bar code readable by optical detectors. According to the patent's claim, the portion of the patent document that defines the patentee's rights, Markman's product can "maintain an inventory total" and "detect and localize spurious additions to inventory." The product of respondent Westview Instruments, Inc., also uses a keyboard and processor and lists dry-cleaning charges on bar-coded tickets that can be read by optical detectors. In this infringement suit, after hearing an expert witness testify about the meaning of the claim's language, the jury found that Westview's product had infringed Markman's patent. The District Court nevertheless directed a verdict for Westview on the ground that its device is unable to track "inventory" as that term is used in the claim. The Court of Appeals affirmed, holding the interpretation of claim terms to be the exclusive province of the court and the Seventh Amendment to be consistent with that conclusion.

Held: The construction of a patent, including terms of art within its claim, is exclusively within the province of the court. Pp. 1389–1396.

(a) The Seventh Amendment right of trial by jury is the right which existed under the English common law when the Amendment was adopted. *Baltimore & Carolina Line, Inc. v. Redman*, 295 U.S. 654, 657, 55 S.Ct. 890, 891, 79 L.Ed. 1636. Thus, the Court asks, first, whether infringement cases either were tried at law at the time of the founding or are at least analogous to a cause of action that was. There is no dispute that infringement cases today must be tried before a jury, as their predecessors were more than two centuries ago. This conclusion raises a second question: whether the particular trial issue (here a patent claim's construction) is necessarily a jury issue. This question is answered by comparing the modern

practice to historical sources. Where there is no exact antecedent in the common law, the modern practice should be compared to earlier practices whose allocation to court or jury is known, and the *371 best analogy that can be drawn between an old and the new must be sought. Pp. 1389–1390.

(b) There is no direct antecedent of modern claim construction in the historical sources. The closest 18th-century analogue **1387 to modern claim construction seems to have been the construction of patent specifications describing the invention. Early patent cases from England and this Court show that judges, not juries, construed specification terms. No authority from this period supports Markman’s contention that even if judges were charged with construing most patent terms, the art of defining terms of art in a specification fell within the jury’s province. Pp. 1390–1393.

(c) Since evidence of common-law practice at the time of the framing does not entail application of the Seventh Amendment’s jury guarantee to the construction of the claim document, this Court must look elsewhere to characterize this determination of meaning in order to allocate it as between judge or jury. Existing precedent, the relative interpretive skills of judges and juries, and statutory policy considerations all favor allocating construction issues to the court. As the former patent practitioner, Justice Curtis, explained, the first issue in a patent case, construing the patent, is a question of law, to be determined by the court. The second issue, whether infringement occurred, is a question of fact for a jury. *Winans v. Denmead*, 15 How. 330, 338, 14 L.Ed. 717. Contrary to Markman’s contention, *Bischoff v. Wethered*, 9 Wall. 812, 19 L.Ed. 829, and *Tucker v. Spalding*, 13 Wall. 453, 20 L.Ed. 515, neither indicate that 19th-century juries resolved the meaning of patent terms of art nor undercut Justice Curtis’s authority. Functional considerations also favor having judges define patent terms of art. A judge, from his training and discipline, is more likely to give proper interpretation to highly technical patents than a jury and is in a better position to ascertain whether an expert’s proposed definition fully comports with the instrument as a whole. Finally, the need for uniformity in the treatment of a given patent favors allocation of construction issues to the court. Pp. 1393–1396.

52 F.3d 967 (C.A.Fed.1995) , affirmed.

SOUTER, J., delivered the opinion for a unanimous Court.

Attorneys and Law Firms

William B. Mallen, for petitioners.

*372 Frank H. Griffin, III, Media, PA, for respondents.

Opinion

Justice SOUTER delivered the opinion of the Court.

The question here is whether the interpretation of a so-called patent claim, the portion of the patent document that defines the scope of the patentee’s rights, is a matter of law reserved entirely for the court, or subject to a Seventh Amendment guarantee that a jury will determine the meaning of any disputed term of art about which expert testimony is offered. We hold that the construction of a patent, including terms of art within its claim, is exclusively within the province of the court.

*373 I

[1] [2] The Constitution empowers Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Art. I, § 8, cl. 8. Congress first exercised this authority in 1790, when it provided for the issuance of “letters patent,” Act of Apr. 10, 1790, ch. 7, § 1, 1 Stat. 109, which, like their modern counterparts, granted inventors “the right to exclude others from making, using, offering for sale, selling, or importing the patented invention,” in exchange for full disclosure of an invention, H. Schwartz, *Patent Law and Practice* 1, 33 (2d ed.1995). It has long been understood that a patent must describe the exact scope of an invention and its manufacture to “secure to [the patentee] all to which he is entitled, [and] to apprise the public of what is still open to them.” *McClain v. Ortmyer*, 141 U.S. 419, 424, 12 S.Ct. 76, 77, 35 L.Ed. 800 (1891). Under the modern American system, these objectives are served by two distinct elements of a patent document. First, it contains a specification describing the invention “in such full, clear, concise, and exact **1388 terms as to enable any person skilled in the art ... to make and use the same.” 35 U.S.C. § 112; see also 3 E. Lipscomb, *Walker on Patents* § 10:1, pp. 183–184 (3d ed. 1985) (Lipscomb) (listing the requirements for a specification). Second, a patent includes one or more “claims,” which “particularly poin[t] out and distinctly clai[m] the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112. “A claim covers and

secures a process, a machine, a manufacture, a composition of matter, or a design, but never the function or result of either, nor the scientific explanation of their operation.” 6 Lipscomb § 21:17, at 315–316. The claim “define[s] the scope of a patent grant,” 3 *id.*, § 11:1, at 280, and functions to forbid not only exact copies of an invention, but products that go to “the heart of an invention but avoids the literal language of the claim by making a *374 noncritical change,” Schwartz, *supra*, at 82.¹ In this opinion, the word “claim” is used only in this sense peculiar to patent law.

¹ Characteristically, patent lawsuits charge what is known as infringement, Schwartz, *supra*, at 75, and rest on allegations that the defendant “without authority ma[de], use[d] or [sold the] patented invention, within the United States during the term of the patent therefor....” 35 U.S.C. § 271(a). Victory in an infringement suit requires a finding that the patent claim “covers the alleged infringer’s product or process,” which in turn necessitates a determination of “what the words in the claim mean.” Schwartz, *supra*, at 80; see also 3 Lipscomb § 11:2, at 288–290.

Petitioner in this infringement suit, Markman, owns United States Reissue Patent No. 33,054 for his “Inventory Control and Reporting System for Drycleaning Stores.” The patent describes a system that can monitor and report the status, location, and movement of clothing in a dry-cleaning establishment. The Markman system consists of a keyboard and data processor to generate written records for each transaction, including a bar code readable by optical detectors operated by employees, who log the progress of clothing through the dry-cleaning process. Respondent Westview’s product also includes a keyboard and processor, and it lists charges for the dry-cleaning services on bar-coded tickets that can be read by portable optical detectors.

Markman brought an infringement suit against Westview and Althon Enterprises, an operator of dry-cleaning establishments *375 using Westview’s products (collectively, Westview). Westview responded that Markman’s patent is not infringed by its system because the latter functions merely to record an inventory of receivables by tracking invoices and transaction totals, rather than to record and track an inventory of articles of clothing. Part of the dispute hinged upon the meaning of the word “inventory,” a term found in Markman’s independent claim 1, which states that Markman’s product can “maintain an inventory total” and “detect and localize spurious additions to inventory.” The case was tried before a jury, which heard, among others, a witness produced by Markman who testified about the meaning of

the claim language.

After the jury compared the patent to Westview’s device, it found an infringement of Markman’s independent claim 1 and dependent claim 10.² The District Court nevertheless granted Westview’s deferred motion for judgment as a matter of law, one of its reasons being that the term “inventory” in Markman’s patent encompasses “both cash inventory and the actual physical inventory of articles of clothing.” 772 F.Supp. 1535, 1537–1538 (E.D.Pa.1991). Under the trial court’s construction of the patent, the production, **1389 sale, or use of a tracking system for dry cleaners would not infringe Markman’s patent unless the product was capable of tracking articles of clothing throughout the cleaning process and generating reports about their status and location. Since Westview’s system cannot do these things, the District Court directed a verdict on the ground that Westview’s device does not have the “means to maintain an inventory total” and thus cannot “ ‘detect and localize spurious additions to inventory as well as spurious deletions therefrom,’ ” as required by claim 1. *Id.*, at 1537.

*376 Markman appealed, arguing it was error for the District Court to substitute its construction of the disputed claim term ‘inventory’ for the construction the jury had presumably given it. The United States Court of Appeals for the Federal Circuit affirmed, holding the interpretation of claim terms to be the exclusive province of the court and the Seventh Amendment to be consistent with that conclusion. 52 F.3d 967 (1995). Markman sought our review on each point, and we granted certiorari. 515 U.S. 1192, 116 S.Ct. 40, 132 L.Ed.2d 921 (1995). We now affirm.

II

¹ The Seventh Amendment provides that “[i]n Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved....” U.S. Const., Amdt. 7. Since Justice Story’s day, *United States v. Wonson*, 28 F. Cas. 745, 750 (No. 16,750) (CC Mass. 1812), we have understood that “[t]he right of trial by jury thus preserved is the right which existed under the English common law when the Amendment was adopted.” *Baltimore & Carolina Line, Inc. v. Redman*, 295 U.S. 654, 657, 55 S.Ct. 890, 891, 79 L.Ed. 1636 (1935). In keeping with our longstanding adherence to this “historical test,” Wolfram, *The Constitutional History of the Seventh Amendment*, 57

Minn. L.Rev. 639, 640–643 (1973), we ask, first, whether we are dealing with a cause of action that either was tried at law at the time of the founding or is at least analogous to one that was, see, e.g., *Tull v. United States*, 481 U.S. 412, 417, 107 S.Ct. 1831, 1835, 95 L.Ed.2d 365 (1987). If the action in question belongs in the law category, we then ask whether the particular trial decision must fall to the jury in order to preserve the substance of the common-law right as it existed in 1791. See *infra*, at 1389–1390.³

***377 A**

¹⁶¹ As to the first issue, going to the character of the cause of action, “[t]he form of our analysis is familiar. ‘First we compare the statutory action to 18th-century actions brought in the courts of England prior to the merger of the courts of law and equity.’” *Granfinanciera, S.A. v. Nordberg*, 492 U.S. 33, 42, 109 S.Ct. 2782, 2790, 106 L.Ed.2d 26 (1989) (citation omitted). Equally familiar is the descent of today’s patent infringement action from the infringement actions tried at law in the 18th century, and there is no dispute that infringement cases today must be tried to a jury, as their predecessors were more than two centuries ago. See, e.g., *Bramah v. Hardcastle*, 1 Carp. P.C. 168 (K.B.1789).

B

This conclusion raises the second question, whether a particular issue occurring within a jury trial (here the construction of a patent claim) is itself necessarily a jury issue, the guarantee being essential to preserve the right to a jury’s resolution of the ultimate dispute. In some instances the answer to this second question may be easy because of clear historical evidence that the very subsidiary question was so regarded under the English practice of leaving the issue for a jury. But when, as here, the old practice provides no clear answer, see *infra*, at 1390–1391, we are forced to make a judgment about the scope of the Seventh Amendment guarantee without the benefit of any foolproof test.

****1390** ¹⁷¹ The Court has repeatedly said that the answer to the second question “must depend on whether the jury must shoulder this responsibility *as necessary to preserve*

the ‘substance of the common-law right of trial by jury.’” *Tull v. United States*, *supra*, at 426, 107 S.Ct., at 1840 (emphasis added) (quoting *Colgrove v. Battin*, 413 U.S. 149, 156, 93 S.Ct. 2448, 2452, 37 L.Ed.2d 522 (1973)); see also *Baltimore & Carolina Line*, *supra*, at 657, 55 S.Ct., at 891. “ “Only those incidents which are regarded as fundamental, as inherent in and of the essence of the system of trial by jury, are placed beyond ***378** the reach of the legislature.” ’ ” *Tull v. United States*, *supra*, at 426, 107 S.Ct., at 1840 (citations omitted); see also *Galloway v. United States*, 319 U.S. 372, 392, 63 S.Ct. 1077, 1088, 87 L.Ed. 1458 (1943).

The “substance of the common-law right” is, however, a pretty blunt instrument for drawing distinctions. We have tried to sharpen it, to be sure, by reference to the distinction between substance and procedure. See *Baltimore & Carolina Line*, *supra*, at 657, 55 S.Ct., at 891; see also *Galloway v. United States*, *supra*, at 390–391, 63 S.Ct., at 1087–1088; *Ex parte Peterson*, 253 U.S. 300, 309, 40 S.Ct. 543, 546, 64 L.Ed. 919 (1920); *Walker v. New Mexico & Southern Pacific R. Co.*, 165 U.S. 593, 596, 17 S.Ct. 421, 422, 41 L.Ed. 837 (1897); but see *Sun Oil Co. v. Wortman*, 486 U.S. 717, 727, 108 S.Ct. 2117, 2124, 100 L.Ed.2d 743 (1988). We have also spoken of the line as one between issues of fact and law. See *Baltimore & Carolina Line*, *supra*, at 657, 55 S.Ct., at 891; see also *Ex parte Peterson*, *supra*, at 310, 40 S.Ct., at 546; *Walker v. New Mexico & Southern Pacific R. Co.*, *supra*, at 597, 17 S.Ct., at 422; but see *Pullman–Standard v. Swint*, 456 U.S. 273, 288, 102 S.Ct. 1781, 1789, 72 L.Ed.2d 66 (1982).

¹⁸¹ But the sounder course, when available, is to classify a mongrel practice (like construing a term of art following receipt of evidence) by using the historical method, much as we do in characterizing the suits and actions within which they arise. Where there is no exact antecedent, the best hope lies in comparing the modern practice to earlier ones whose allocation to court or jury we do know, cf. *Baltimore & Carolina Line*, *supra*, at 659, 660, 55 S.Ct., at 892, 893; *Dimick v. Schiedt*, 293 U.S. 474, 477, 482, 55 S.Ct. 296, 297, 79 L.Ed. 603 (1935), seeking the best analogy we can draw between an old and the new, see *Tull v. United States*, *supra*, at 420–421, 107 S.Ct., at 1836–1837 (we must search the English common law for “appropriate analogies” rather than a “precisely analogous common-law cause of action”).

C

¹⁹¹ “Prior to 1790 nothing in the nature of a claim had appeared either in British patent practice or in that of the *379 American states,” Lutz, *Evolution of the Claims of U.S. Patents*, 20 J. Pat. Off. Soc. 134 (1938), and we have accordingly found no direct antecedent of modern claim construction in the historical sources. Claim practice did not achieve statutory recognition until the passage of the Act of July 4, 1836, ch. 357, § 6, 5 Stat. 119, and inclusion of a claim did not become a statutory requirement until 1870, Act of July 8, 1870, ch. 230, § 26, 16 Stat. 201; see 1 A. Deller, *Patent Claims* § 4, p. 9 (2d ed.1971). Although, as one historian has observed, as early as 1850 “judges were ... beginning to express more frequently the idea that in seeking to ascertain the invention ‘claimed’ in a patent the inquiry should be limited to interpreting the summary, or ‘claim,’ ” Lutz, *supra*, at 145, “[t]he idea that the claim is just as important if not more important than the description and drawings did not develop until the Act of 1870 or thereabouts.” Deller, *supra*, § 4, at 9.

At the time relevant for Seventh Amendment analogies, in contrast, it was the specification, itself a relatively new development, H. Dutton, *The Patent System and Inventive Activity During the Industrial Revolution, 1750–1852*, pp. 75–76 (1984), that represented the key to the patent. Thus, patent litigation in that early period was typified by so-called novelty actions, testing whether “any essential part of [the patent had been] disclosed to the public before,” *Huddart v. Grimshaw*, Dav. Pat. Cas. 265, 298 (K.B.1803), and “enablement” **1391 cases, in which juries were asked to determine whether the specification described the invention well enough to allow members of the appropriate trade to reproduce it, see, e.g., *Arkwright v. Nightingale*, Dav. Pat. Cas. 37, 60 (C.P. 1785).

The closest 18th-century analogue of modern claim construction seems, then, to have been the construction of specifications, and as to that function the mere smattering *380 of patent cases that we have from this period⁴ shows no established jury practice sufficient to support an argument by analogy that today’s construction of a claim should be a guaranteed jury issue. Few of the case reports even touch upon the proper interpretation of disputed terms in the specifications at issue, see, e.g., *Bramah v. Hardcastle*, 1 Carp. P.C. 168 (K.B.1789); *King v. Else*, 1 Carp. P.C. 103, Dav. Pat. Cas. 144 (K.B.1785); *Dollond’s Case*, 1 Carp. P.C. 28 (C.P. 1758); *Administrators of Calthorp v. Waymans*, 3 Keb. 710, 84 Eng. Rep. 966 (K.B.1676), and none demonstrates that the definition of such a term was determined by the jury.⁵ This absence of an established practice should not surprise us, given the primitive state of jury patent practice at the end of the 18th century, when juries were still new to the field.

Although by 1791 more than a century had passed since the enactment of the Statute of Monopolies, which provided *381 that the validity of any monopoly should be determined in accordance with the common law, patent litigation had remained within the jurisdiction of the Privy Council until 1752 and hence without the option of a jury trial. E. Walterscheid, *Early Evolution of the United States Patent Law: Antecedents (Part 3)*, 77 J. Pat. & Tm. Off. Soc. 771, 771–776 (1995). Indeed, the state of patent law in the common-law courts before 1800 led one historian to observe that “the reported cases are destitute of any decision of importance.... At the end of the eighteenth century, therefore, the Common Law Judges were left to pick up the threads of the principles of law without the aid of recent and reliable precedents.” Hulme, *On the Consideration of the Patent Grant, Past and Present*, 13 L.Q. Rev. 313, 318 (1897). Earlier writers expressed similar discouragement at patent law’s amorphous character,⁶ and, as late as the 1830’s, English commentators were irked by enduring confusion in the field. See Dutton, *supra*, at 69–70.

Markman seeks to supply what the early case reports lack in so many words by relying on decisions like *Turner v. Winter*, 1 T.R. 602, 99 Eng. Rep. 1274 (K.B.1787), and *Arkwright v. Nightingale*, Dav. Pat. Cas. 37 (C.P. 1785), to argue that the 18th-century juries must have acted as definers of patent terms just to reach the verdicts we know they rendered in patent cases turning on enablement or novelty. But the conclusion simply does not follow. There is no more **1392 reason to infer that juries supplied plenary interpretation of written instruments in patent litigation than in other cases implicating the meaning of documentary terms, and we do know that in other kinds of cases during this period judges, *382 not juries, ordinarily construed written documents.⁷ The probability that the judges were doing the same thing in the patent litigation of the time is confirmed by the fact that as soon as the English reports did begin to describe the construction of patent documents, they show the judges construing the terms of the specifications. See *Bovill v. Moore*, Dav. Pat. Cas. 361, 399, 404 (C.P. 1816) (judge submits question of novelty to the jury only after explaining some of the language and “stat[ing] in what terms the specification runs”); cf. *Russell v. Cowley & Dixon*, Webs. Pat. Cas. 457, 467–470 (Exch.1834) (construing the terms of the specification in reviewing a verdict); *Haworth v. Hardcastle*, Webs. Pat. Cas. 480, 484–485 (1834) (same). This evidence is in fact buttressed by cases from this Court; when they first reveal actual practice, the practice revealed is of the judge construing the patent. See, e.g., *Winans v. New York & Erie R. Co.*, 21 How. 88, 100, 16 L.Ed. 68 (1859); *Winans v. Denmead*, 15 How. 330, 338, 14 L.Ed. 717 (1854); *Hogg v. Emerson*, 6 How. 437, 484,

12 L.Ed. 505 (1848); cf. *Parker v. Hulme*, 18 F. Cas. 1138 (No. 10,740) (CC ED Pa. 1849). These indications of our patent practice are the more impressive for being all of a piece with what we know about the analogous contemporary practice of interpreting *383 terms within a land patent, where it fell to the judge, not the jury, to construe the words.⁸

D

Losing, then, on the contention that juries generally had interpretive responsibilities during the 18th century, Markman seeks a different anchor for analogy in the more modest contention that even if judges were charged with construing most terms in the patent, the art of defining terms of art employed in a specification fell within the province of the jury. Again, however, Markman has no authority from the period in question, but relies instead on the later case of *Neilson v. Harford*, Webs. Pat. Cas. 328 (Exch.1841). There, an exchange between the judge and the lawyers indicated that although the construction of a patent was ordinarily for the court, *id.*, at 349 (Alderson, B.), judges should “leav[e] the question of words of art to the jury,” *id.*, at 350 (Alderson, B.); see also *id.*, at 370 (judgment of the court); *Hill v. Evans*, 4 De. G.F. & J. 288, 293–294, 45 Eng. Rep. 1195, 1197 (Ch. 1862). Without, however, in any way disparaging the weight to which Baron Alderson’s view is entitled, the most we can say is that an English report more than 70 years after the time that concerns us indicates an exception to what probably had been occurring earlier.⁹ In place of **1393 *384 Markman’s inference that this exceptional practice existed in 1791 there is at best only a possibility that it did, and for anything more than a possibility we have found no scholarly authority.

III

^[10] Since evidence of common-law practice at the time of the framing does not entail application of the Seventh Amendment’s jury guarantee to the construction of the claim document, we must look elsewhere to characterize this determination of meaning in order to allocate it as between court or jury. We accordingly consult existing precedent¹⁰ and consider both the relative interpretive skills of judges and juries and the statutory policies that

ought to be furthered by the allocation.

A

The two elements of a simple patent case, construing the patent and determining whether infringement occurred, were characterized by the former patent practitioner, Justice Curtis.¹¹ “The first is a question of law, to be determined by the court, construing the letters-patent, and the description of the invention and specification of claim annexed to them. The second is a question of fact, to be submitted to a jury.” *Winans v. Denmead*, *supra*, at 338; see *Winans v. *385 New York & Erie R. Co.*, *supra*, at 100; *Hogg v. Emerson*, *supra*, at 484; cf. *Parker v. Hulme*, *supra*, at 1140.

In arguing for a different allocation of responsibility for the first question, Markman relies primarily on two cases, *Bischoff v. Wethered*, 9 Wall. 812, 19 L.Ed. 829 (1870), and *Tucker v. Spalding*, 13 Wall. 453, 20 L.Ed. 515 (1871). These are said to show that evidence of the meaning of patent terms was offered to 19th-century juries, and thus to imply that the meaning of a documentary term was a jury issue whenever it was subject to evidentiary proof. That is not what Markman’s cases show, however.

In order to resolve the *Bischoff* suit implicating the construction of rival patents, we considered “whether the court below was bound to compare the two specifications, and to instruct the jury, as a matter of law, whether the inventions therein described were, or were not, identical.” 9 Wall., at 813 (statement of the case). We said it was not bound to do that, on the ground that investing the court with so dispositive a role would improperly eliminate the jury’s function in answering the ultimate question of infringement. On that ultimate issue, expert testimony had been admitted on “the nature of the various mechanisms or manufactures described in the different patents produced, and as to the identity or diversity between them.” *Id.*, at 814. Although the jury’s consideration of that expert testimony in resolving the question of infringement was said to impinge upon the well-established principle “that it is the province of the court, and not the jury, to construe the meaning of documentary evidence,” *id.*, at 815, we decided that it was not so. We said:

“[T]he specifications ... profess to describe mechanisms and complicated machinery, chemical compositions and other manufactured products, which have their

existence *in pais*, outside of the documents themselves; and which are commonly described by terms of the art or mystery to which they respectively belong; and these *386 descriptions and terms of art often require peculiar knowledge and education to understand them aright.... Indeed, the **1394 whole subject-matter of a patent is an embodied conception outside of the patent itself.... This outward embodiment of the terms contained in the patent is the thing invented, and is to be properly sought, like the explanation of all latent ambiguities arising from the description of external things, by evidence *in pais*.” *Ibid*.

Bischoff does not then, as Markman contends, hold that the use of expert testimony about the meaning of terms of art requires the judge to submit the question of their construction to the jury. It is instead a case in which the Court drew a line between issues of document interpretation and product identification, and held that expert testimony was properly presented to the jury on the latter, ultimate issue, whether the physical objects produced by the patent were identical. The Court did not see the decision as bearing upon the appropriate treatment of disputed terms. As the opinion emphasized, the Court’s “view of the case is not intended to, and does not, trench upon the doctrine that the construction of written instruments is the province of the court alone. *It is not the construction of the instrument, but the character of the thing invented, which is sought in questions of identity and diversity of inventions.*” *Id.*, at 816 (emphasis added). *Tucker*, the second case proffered by Markman, is to the same effect. Its reasoning rested expressly on *Bischoff*, and it just as clearly noted that in addressing the ultimate issue of mixed fact and law, it was for the court to “lay down to the jury the law which should govern them.” *Tucker, supra*, at 455.¹²

*387 If the line drawn in these two opinions is a fine one, it is one that the Court has drawn repeatedly in explaining the respective roles of the jury and judge in patent cases,¹³ and one understood by commentators writing in the aftermath of the cases Markman cites. Walker, for example, read *Bischoff* as holding that the question of novelty is not decided by a construction of the prior patent, “but depends rather upon the outward embodiment of the terms contained in the [prior patent]; and that such outward embodiment is to be properly sought, like the explanation of latent ambiguities arising from the description of external things, by evidence *in pais*.” A. Walker, *Patent Laws* § 75, p. 68 (3d ed. 1895). He also emphasized in the same treatise that matters of claim construction, even those aided by expert testimony, are questions for the court:

“Questions of construction are questions of law for the judge, not questions of fact for the jury. As it cannot be expected, however, that judges will always possess the requisite knowledge of the meaning of the terms of art or science used in letters patent, it often becomes necessary that they should avail themselves of the light furnished by experts relevant to the significance of such words and phrases. The judges are not, however, obliged to blindly follow such testimony.” *Id.*, § 189, at 173 (footnotes omitted).

Virtually the same description of the court’s use of evidence in its interpretive role was set out in another contemporary treatise:

*388 “The duty of interpreting letters-patent has been committed to the courts. A patent is a legal instrument, to be construed, like other legal instruments, according to its tenor.... Where technical terms are used, or where the qualities of substances or operations mentioned or any similar data necessary to the comprehension of the language of the patent are unknown to the judge, the testimony of **1395 witnesses may be received upon these subjects, and any other means of information be employed. *But in the actual interpretation of the patent the court proceeds upon its own responsibility, as an arbiter of the law, giving to the patent its true and final character and force.*” 2 W. Robinson, *Law of Patents* § 732, pp. 481–483 (1890) (emphasis added; footnotes omitted).

In sum, neither *Bischoff* nor *Tucker* indicates that juries resolved the meaning of terms of art in construing a patent, and neither case undercuts Justice Curtis’s authority.

B

Where history and precedent provide no clear answers, functional considerations also play their part in the choice between judge and jury to define terms of art. We said in *Miller v. Fenton*, 474 U.S. 104, 114, 106 S.Ct. 445, 451, 88 L.Ed.2d 405 (1985), that when an issue “falls somewhere between a pristine legal standard and a simple historical fact, the fact/law distinction at times has turned on a determination that, as a matter of the sound administration of justice, one judicial actor is better positioned than another to decide the issue in question.” So it turns out here, for judges, not juries, are the better suited to find the acquired meaning of patent terms.

¹¹¹ The construction of written instruments is one of those

things that judges often do and are likely to do better than jurors unburdened by training in exegesis. Patent construction in particular “is a special occupation, requiring, like all others, special training and practice. The judge, from his training and discipline, is more likely to give a proper *389 interpretation to such instruments than a jury; and he is, therefore, more likely to be right, in performing such a duty, than a jury can be expected to be.” *Parker v. Hulme*, 18 F. Cas., at 1140. Such was the understanding nearly a century and a half ago, and there is no reason to weigh the respective strengths of judge and jury differently in relation to the modern claim; quite the contrary, for “the claims of patents have become highly technical in many respects as the result of special doctrines relating to the proper form and scope of claims that have been developed by the courts and the Patent Office.” Woodward, *Definiteness and Particularity in Patent Claims*, 46 Mich. L.Rev. 755, 765 (1948).

^[12] Markman would trump these considerations with his argument that a jury should decide a question of meaning peculiar to a trade or profession simply because the question is a subject of testimony requiring credibility determinations, which are the jury’s forte. It is, of course, true that credibility judgments have to be made about the experts who testify in patent cases, and in theory there could be a case in which a simple credibility judgment would suffice to choose between experts whose testimony was equally consistent with a patent’s internal logic. But our own experience with document construction leaves us doubtful that trial courts will run into many cases like that. In the main, we expect, any credibility determinations will be subsumed within the necessarily sophisticated analysis of the whole document, required by the standard construction rule that a term can be defined only in a way that comports with the instrument as a whole. See *Bates v. Coe*, 98 U.S. 31, 38, 25 L.Ed. 68 (1878); 6 Lipscomb § 21:40, at 393; 2 Robinson, *supra*, § 734, at 484; Woodward, *supra*, at 765; cf. *U.S. Industrial Chemicals, Inc. v. Carbide & Carbon Chemicals Corp.*, 315 U.S. 668, 678, 62 S.Ct. 839, 844, 86 L.Ed. 1105 (1942); cf. 6 Lipscomb § 21:40, at 393. Thus, in these cases a jury’s capabilities to evaluate demeanor, cf. *Miller, supra*, at 114, 117, 106 S.Ct., at 451, 453, to sense the “mainsprings of human conduct,” *Commissioner v. Duberstein*, 363 U.S. 278, 289, 80 S.Ct. 1190, 1198, 4 L.Ed.2d 1218 (1960), or to reflect community *390 standards, *United States v. McConney*, 728 F.2d 1195, 1204 (C.A.9 1984) (en banc), are much less significant than a trained ability to evaluate the testimony in relation to the overall structure of the patent. The decisionmaker vested with the task of construing the patent is in the better position to ascertain whether an expert’s proposed definition fully comports with the specification and

claims and so will preserve the patent’s internal coherence. We accordingly think there is sufficient reason to treat construction of terms of art like **1396 many other responsibilities that we cede to a judge in the normal course of trial, notwithstanding its evidentiary underpinnings.

C

^[13] Finally, we see the importance of uniformity in the treatment of a given patent as an independent reason to allocate all issues of construction to the court. As we noted in *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 369, 58 S.Ct. 899, 902, 82 L.Ed. 1402 (1938), “[t]he limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public.” Otherwise, a “zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field.” *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236, 63 S.Ct. 165, 170, 87 L.Ed. 232 (1942), and “[t]he public [would] be deprived of rights supposed to belong to it, without being clearly told what it is that limits these rights.” *Merrill v. Yeomans*, 94 U.S. 568, 573, 24 L.Ed. 235 (1877). It was just for the sake of such desirable uniformity that Congress created the Court of Appeals for the Federal Circuit as an exclusive appellate court for patent cases, H.R.Rep. No. 97–312, pp. 20–23 (1981), observing that increased uniformity would “strengthen the United States patent system in such a way as to foster technological growth and industrial innovation.” *Id.*, at 20.

*391 Uniformity would, however, be ill served by submitting issues of document construction to juries. Making them jury issues would not, to be sure, necessarily leave evidentiary questions of meaning wide open in every new court in which a patent might be litigated, for principles of issue preclusion would ordinarily foster uniformity. Cf. *Blonder-Tongue Laboratories, Inc. v. University of Ill. Foundation*, 402 U.S. 313, 91 S.Ct. 1434, 28 L.Ed.2d 788 (1971). But whereas issue preclusion could not be asserted against new and independent infringement defendants even within a given jurisdiction, treating interpretive issues as purely legal will promote (though it will not guarantee) intrajurisdictional certainty through the application of

stare decisis on those questions not yet subject to interjurisdictional uniformity under the authority of the single appeals court.

It is so ordered.

* * *

Accordingly, we hold that the interpretation of the word “inventory” in this case is an issue for the judge, not the jury, and affirm the decision of the Court of Appeals for the Federal Circuit.

All Citations


517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577, 64 USLW 4263, 38 U.S.P.Q.2d 1461, 96 Cal. Daily Op. Serv. 2788, 96 Daily Journal D.A.R. 4642

Footnotes

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 287, 50 L.Ed. 499.
- 1 Thus, for example, a claim for a ceiling fan with three blades attached to a solid rod connected to a motor would not only cover fans that take precisely this form, but would also cover a similar fan that includes some additional feature, *e.g.*, such a fan with a cord or switch for turning it on and off, and may cover a product deviating from the core design in some noncritical way, *e.g.*, a three-bladed ceiling fan with blades attached to a hollow rod connected to a motor. H. Schwartz, *Patent Law and Practice* 81–82 (2d ed.1995).
- 2 Dependent claim 10 specifies that, in the invention of claim 1, the input device is an alpha-numeric keyboard in which single keys may be used to enter the attributes of the items in question.
- 3 Our formulations of the historical test do not deal with the possibility of conflict between actual English common-law practice and American assumptions about what that practice was, or between English and American practices at the relevant time. No such complications arise in this case.
- 4 Before the turn of the century, “no more than twenty-two [reported] cases came before the superior courts of London.” H. Dutton, *The Patent System and Inventive Activity During the Industrial Revolution, 1750–1852*, p. 71 (1984).
- 5 Markman relies heavily upon Justice Buller’s notes of Lord Mansfield’s instructions in *Liardet v. Johnson* (K.B.1778), in 1 J. Oldham, *The Mansfield Manuscripts and the Growth of English Law in the Eighteenth Century* 748 (1992). *Liardet* was an enablement case about the invention of stucco, in which a defendant asserted that the patent was invalid because it did not fully describe the appropriate method for producing the substance. Even setting aside concerns about the accuracy of the summary of the jury instructions provided for this case from outside the established reports, see 1 Oldham, *supra*, at 752, n. 11, it does not show that juries construed disputed terms in a patent. From its ambiguous references, *e.g.*, 1 Oldham, *supra*, at 756 (“[Lord Mansfield] left to the jury 1st, on all objections made to exactness, certainty and propriety of the Specification, & whether any workman could make it by [the Specification]”), we cannot infer the existence of an established practice, *cf.* *Galloway v. United States*, 319 U.S. 372, 392, 63 S.Ct. 1077, 1088, 87 L.Ed. 1458 (1943) (expressing concern regarding the “uncertainty and the variety of conclusions which follows from an effort at purely historical accuracy”), especially when, as here, the inference is undermined by evidence that judges, rather than jurors, ordinarily construed written documents at the time. See *infra*, at 1393–1394.
- 6 See, *e.g.*, *Boulton and Watt v. Bull*, 2 H. Bl. 463, 491, 126 Eng. Rep. 651, 665 (C.P. 1795) (Eyre, C.J.) (“Patent rights are no where that I can find accurately discussed in our books”); Dutton, *supra* n. 4, at 70–71 (quoting Abraham Weston as saying “it may with truth be said that the [Law] Books are silent on the subject [of patents] and furnish no clue to go by, in agitating the Question What is the Law of Patents?”).
- 7 See, *e.g.*, Devlin, *Jury Trial of Complex Cases: English Practice at the Time of the Seventh Amendment*, 80 Colum. L.Rev. 43, 75 (1980); Weiner, *The Civil Jury Trial and the Law–Fact Distinction*, 54 Calif.L.Rev. 1867, 1932 (1966). For example, one historian observed that it was generally the practice of judges in the late 18th century “to keep the construction of writings *out of the jury’s hands* and reserve it for themselves,” a “safeguard” designed to prevent a jury from “constru[ing] or refin[ing] it at pleasure.” 9 J. Wigmore, *Evidence* § 2461, p. 194 (J. Chadbourn rev. ed.1981) (emphasis in original; internal quotation marks omitted). The absence of any established practice supporting Markman’s view is also shown by the disagreement between Justices Willis and Buller, reported in *Macbeath v. Haldimand*, 1 T.R. 173, 180–182, 99 Eng. Rep. 1036, 1040–1041 (K.B.1786), as to whether juries could ever construe written documents when their meaning was disputed.
- 8 As we noted in *Brown v. Huger*, 21 How. 305, 318, 16 L.Ed. 125 (1859):

“With regard to the second part of this objection, that which claims for the jury the construction of the patent, we remark that the patent itself must be taken as evidence of its meaning; that, like other written instruments, it must be interpreted as a whole ... and the legal deductions drawn therefrom must be conformable with the scope and purpose of the entire document. This construction and these deductions we hold to be within the exclusive province of the court.”

- 9 In explaining that judges generally construed all terms in a written document at the end of the 18th century, one historian observed that “[i]nterpretation by local usage for example (today the plainest case of legitimate deviation from the normal standard) was still but making its way.” 9 Wigmore, Evidence § 2461, at 195; see also *id.*, at 195, and n. 6 (providing examples of this practice). We need not in any event consider here whether our conclusion that the Seventh Amendment does not require terms of art in patent claims to be submitted to the jury supports a similar result in other types of cases.
- 10 Because we conclude that our precedent supports classifying the question as one for the court, we need not decide either the extent to which the Seventh Amendment can be said to have crystallized a law/fact distinction, cf. *Ex parte Peterson*, 253 U.S. 300, 310, 40 S.Ct. 543, 546, 64 L.Ed. 919 (1920); *Walker v. New Mexico & Southern Pacific R. Co.*, 165 U.S. 593, 597, 17 S.Ct. 421, 422, 41 L.Ed. 837 (1897), or whether post-1791 precedent classifying an issue as one of fact would trigger the protections of the Seventh Amendment if (unlike this case) there were no more specific reason for decision.
- 11 See 1 A Memoir of Benjamin Robbins Curtis, L.L.D., 84 (B. Curtis ed. 1879); cf. *O’Reilly v. Morse*, 15 How. 62, 63, 14 L.Ed. 601 (1854) (noting his involvement in a patent case).
- 12 We are also unpersuaded by petitioner’s heavy reliance upon the decision of Justice Story on circuit in *Washburn v. Gould*, 29 F. Cas. 312 (No. 17,214) (CC Mass. 1844). Although he wrote that “[t]he jury are to judge of the meaning of words of art, and technical phrases,” *id.*, at 325, he did so in describing the decision in *Neilson v. Harford*, Webs. Pat. Cas. 328 (Exch.1841), which we discuss, *supra*, at 1392, and, whether or not he agreed with *Neilson*, he stated, “[b]ut I do not proceed upon this ground.” 29 F. Cas., at 325.
- 13 See, e.g., *Coupe v. Royer*, 155 U.S. 565, 579–580, 15 S.Ct. 199, 205, 39 L.Ed. 263 (1895); *Silsby v. Foote*, 14 How. 218, 226, 14 L.Ed. 391 (1853); *Hogg v. Emerson*, 6 How. 437, 484, 12 L.Ed. 505 (1848); cf. *Brown v. Piper*, 91 U.S. 37, 41, 23 L.Ed. 200 (1875); *Winans v. New York & Erie R. Co.*, 21 How. 88, 100, 16 L.Ed. 68 (1859); cf. also *U.S. Industrial Chemicals, Inc. v. Carbide & Carbon Chemicals Corp.*, 315 U.S. 668, 678, 62 S.Ct. 839, 844, 86 L.Ed. 1105 (1942).

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [Akamai Technologies, Inc. v. Limelight Networks, Inc.](#), D.Mass., April 25, 2016

134 S.Ct. 2120
Supreme Court of the United States

NAUTILUS, INC., Petitioner
v.
BIOSIG INSTRUMENTS, INC.

No. 13–369.

Argued April 28, 2014.

Decided June 2, 2014.

Synopsis

Background: Assignee of patent directed to a heart rate monitor used in exercise equipment brought infringement action against competitor. Following claim construction, the United States District Court for the Southern District of New York, [Alvin K. Hellerstein, J.](#), granted competitor’s motion for summary judgment, holding that the patent was invalid as indefinite. Assignee appealed. The United States Court of Appeals for the Federal Circuit, [Wallach](#), Circuit Judge, [715 F.3d 891](#), reversed, and certiorari was granted.

Holdings: The Supreme Court, Justice [Ginsburg](#), held that:

[1] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention, abrogating [Hearing Components, Inc. v. Shure Inc.](#), 600 F.3d 1357, [Datamize, LLC v. Plumtree Software, Inc.](#), 417 F.3d 1342, [Exxon Research & Engineering Co. v. United States](#), 265 F.3d 1371, [Every Penny Counts, Inc. v. Wells Fargo Bank, N. A.](#), 2014 WL 869092, and

[2] remand was required to permit the Court of Appeals to reconsider, under the proper standard for definiteness, whether the claim term “spaced relationship” in patent delineated the permissible spacing of electrodes with sufficient precision.

Vacated and remanded.

West Headnotes (15)

[1] **Patents**  Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291II(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

A patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention; abrogating [Hearing Components, Inc. v. Shure Inc.](#), 600 F.3d 1357, [Datamize, LLC v. Plumtree Software, Inc.](#), 417 F.3d 1342, [Exxon Research & Engineering Co. v. United States](#), 265 F.3d 1371, [Every Penny Counts, Inc. v. Wells Fargo Bank, N. A.](#), 2014 WL 869092. 35 U.S.C.A. § 112.

1042 Cases that cite this headnote

[2] **Patents**  Patents

291 Patents
291II In General
291k401 In general
(Formerly 291k1)

The patent monopoly is a property right, and like any property right, its boundaries should be clear. U.S.C.A. Const. Art. 1, § 8, cl. 8.

4 Cases that cite this headnote

[3] **Patents**  Ambiguity, Uncertainty, or

Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

Definiteness of a patent is to be evaluated from the perspective of someone skilled in the relevant art. 35 U.S.C.A. § 112.

22 Cases that cite this headnote

[4] Patents → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

In assessing a patent's definiteness, claims are to be read in light of the patent's specification and prosecution history. 35 U.S.C.A. § 112.

744 Cases that cite this headnote

[5] Patents → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

Definiteness is measured from the viewpoint of a person skilled in the art at the time the patent was filed. 35 U.S.C.A. § 112.

96 Cases that cite this headnote

[6] Patents → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

The patent statute's definiteness requirement must take into account the inherent limitations of language; some modicum of uncertainty is the price of ensuring the appropriate incentives for innovation. 35 U.S.C.A. § 112.

32 Cases that cite this headnote

[7] Patents → State of the art

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1341 State of the art
(Formerly 291k161)

Patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art. 35 U.S.C.A. § 112.

23 Cases that cite this headnote

[8] Patents → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

A patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them; otherwise there would be a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims. 35 U.S.C.A. §

112.

119 Cases that cite this headnote

[9] **Patents** → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

The patent drafter is in the best position to resolve the ambiguity in patent claims. 35 U.S.C.A. § 112.

2 Cases that cite this headnote

[10] **Patents** → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

The patent statute's definiteness provision requires that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty; the definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable. 35 U.S.C.A. § 112.

1116 Cases that cite this headnote

[11] **Patents** → Ambiguity, Uncertainty, or Indefiniteness

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
(Formerly 291k101(6))

The certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter. 35 U.S.C.A. § 112.

56 Cases that cite this headnote

[12] **Patents** → Scope of Review

291 Patents
291IV Patent Applications and Proceedings
291IV(E) Judicial Review or Intervention
291k1137 Scope of Review
291k1138 In general
(Formerly 291k113(6))

Although the Supreme Court does not micromanage the Federal Circuit's particular word choice in applying patent-law doctrines, it must ensure that the Federal Circuit's test is at least probative of the essential inquiry.

5 Cases that cite this headnote

[13] **Federal Courts** → Particular cases

170B Federal Courts
170BXVI Supreme Court
170BXVI(E) Proceedings
170Bk3211 Determination and Disposition of Cause
170Bk3216 Reversal, Vacation, and Remand
170Bk3216(2) Particular cases

Remand was required to permit the Court of Appeals to reconsider, under the proper standard for definiteness, whether the claim term "spaced relationship" in patent for a heart rate monitor used in exercise equipment delineated the permissible spacing of electrodes with sufficient precision to satisfy statutory requirements. 35 U.S.C.A. § 112.

1 Cases that cite this headnote

[14] **Federal Courts** → Presentation of Questions
Below or on Review; Record; Waiver

170BFederal Courts
170BXVISupreme Court
170BXVI(D)Presentation of Questions Below or on
Review; Record; Waiver
170Bk3181In general

The Supreme Court is a court of review, not of
first view.

7 Cases that cite this headnote

[15] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 5,337,753. Cited.

****2122 Syllabus***

***898** The Patent Act requires that a patent specification “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.” 35 U.S.C. § 112, ¶ 2. This case concerns the proper reading of the statute’s clarity and precision demand.

Assigned to respondent Biosig Instruments, Inc., the patent in dispute (the ’753 patent) involves a heart-rate monitor used with exercise equipment. Prior heart-rate monitors, the patent asserts, were often inaccurate in measuring the electrical signals accompanying each heartbeat (electrocardiograph or ECG signals) because of the presence of other electrical signals (electromyogram or EMG signals), generated by the user’s skeletal muscles, that can impede ECG signal detection. The invention claims to improve on prior art by detecting and processing ECG signals in a way that filters out the EMG

interference.

Claim 1 of the ’753 patent, which contains the limitations critical to this dispute, refers to a “heart rate monitor for use by a user in association with exercise apparatus and/or exercise procedures.” The claim “comprise[s],” among other elements, a cylindrical bar fitted with a display device; “electronic circuitry including a difference amplifier”; and, on each half of the cylindrical bar, a “live” electrode and a “common” electrode “mounted ... in spaced relationship with each other.”

Biosig filed this patent infringement suit, alleging that Nautilus, Inc., without obtaining a license, sold exercise machines containing Biosig’s patented technology. The District Court, after conducting a hearing to determine the proper construction of the patent’s claims, granted Nautilus’ motion for summary judgment on the ground that the claim term “in spaced relationship with each other” failed § 112, ¶ 2’s definiteness requirement. The Federal Circuit reversed and remanded, concluding that a patent claim passes the § 112, ¶ 2 threshold so long as the claim is “amenable to construction,” and the claim, as construed, is not “insolubly ambiguous.” Under that standard, the court determined, the ’753 patent survived indefiniteness review.

****2123 Held :**

1. A patent is invalid for indefiniteness if its claims, read in light of the patent’s specification and prosecution history, fail to inform, with ***899** reasonable certainty, those skilled in the art about the scope of the invention. The parties agree that definiteness is to be evaluated from the perspective of a person skilled in the relevant art, that claims are to be read in light of the patent’s specification and prosecution history, and that definiteness is to be measured as of the time of the patent application. The parties disagree as to how much imprecision § 112, ¶ 2 tolerates.

Section 112’s definiteness requirement must take into account the inherent limitations of language. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731, 122 S.Ct. 1831, 152 L.Ed.2d 944. On the one hand, some modicum of uncertainty is the “price of ensuring the appropriate incentives for innovation,” *id.*, at 732, 122 S.Ct. 1831; and patents are “not addressed to lawyers, or even to the public generally,” but to those skilled in the relevant art, *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437, 22 S.Ct. 698, 46 L.Ed. 968. At the same time, a patent must be precise enough to afford clear notice of what is claimed, thereby “ ‘appris [ing] the public of what is still open to them,’ ” *Markman*

v. Westview Instruments, Inc., 517 U.S. 370, 373, 116 S.Ct. 1384, 134 L.Ed.2d 577, in a manner that avoids “[a] zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims,” *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236, 63 S.Ct. 165, 87 L.Ed. 232. The standard adopted here mandates clarity, while recognizing that absolute precision is unattainable. It also accords with opinions of this Court stating that “the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.” *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270, 37 S.Ct. 82, 61 L.Ed. 286. Pp. 2127 – 2129.

2. The Federal Circuit’s standard, which tolerates some ambiguous claims but not others, does not satisfy the statute’s definiteness requirement. The Court of Appeals inquired whether the ’753 patent’s claims were “amenable to construction” or “insolubly ambiguous,” but such formulations lack the precision § 112, ¶ 2 demands. To tolerate imprecision just short of that rendering a claim “insolubly ambiguous” would diminish the definiteness requirement’s public-notice function and foster the innovation-discouraging “zone of uncertainty,” *United Carbon*, 317 U.S., at 236, 63 S.Ct. 165, against which this Court has warned. While some of the Federal Circuit’s fuller explications of the term “insolubly ambiguous” may come closer to tracking the statutory prescription, this Court must ensure that the Federal Circuit’s test is at least “probative of the essential inquiry.” *Warner–Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40, 117 S.Ct. 1040, 137 L.Ed.2d 146. The expressions “insolubly ambiguous” and “amenable to construction,” which permeate the Federal Circuit’s recent decisions concerning § 112, ¶ 2, fall short in this regard and can leave courts and the patent bar at sea without a reliable compass. Pp. 2129 – 2130.

*900 3. This Court, as “a court of review, not of first view,” *Cutter v. Wilkinson*, 544 U.S. 709, 718, n. 7, 125 S.Ct. 2113, 161 L.Ed.2d 1020, follows its ordinary practice of remanding so that the Federal Circuit can reconsider, under the proper standard, whether the relevant claims in the ’753 patent are sufficiently definite, see, e.g., *Johnson v. California*, 543 U.S. 499, 515, 125 S.Ct. 1141, 160 L.Ed.2d 949. P. 2131.

715 F.3d 891, vacated and remanded.

**2124 GINSBURG, J., delivered the opinion for a unanimous Court.

John D. Vandenberg, Portland, OR, for Petitioner.

Mark D. Harris, New York, NY, for Respondent.

Curtis E. Gannon, for the United States as amicus curiae, by special leave of the Court, supporting the Respondent.

Thomas G. Hungar, Matthew D. McGill, Jonathan C. Bond, Gibson, Dunn & Crutcher LLP, Washington, D.C., James E. Geringer, Jeffrey S. Love, John D. Vandenberg, Counsel of Record, Philip Warrick, Klarquist Sparkman, LLP, Portland, OR, for Petitioner.

Sean M. Handler, Daniel C. Mulveny, Kessler, Topaz, Meltzer & Check LLP, Radnor, PA, Mark D. Harris, Counsel of Record, James H. Shalek, Celia V. Cohen, Proskauer Rose LLP, New York, NY, Steven M. Bauer, John E. Roberts, Anthony H. Cataldo, Jinnie Reed, Proskauer Rose LLP, Boston, MA, for Respondent.

Opinion

Justice GINSBURG delivered the opinion of the Court.

[1] *901 The Patent Act requires that a patent specification “conclude with one or more claims *particularly pointing out and distinctly claiming* the subject matter which the applicant regards as [the] invention.” 35 U.S.C. § 112, ¶ 2 (2006 ed.) (emphasis added). This case, involving a heart-rate monitor used with exercise equipment, concerns the proper reading of the statute’s clarity and precision demand. According to the Federal Circuit, a patent claim passes the § 112, ¶ 2 threshold so long as the claim is “amenable to construction,” and the claim, as construed, is not “insolubly ambiguous.” 715 F.3d 891, 898–899 (2013). We conclude that the Federal Circuit’s formulation, which tolerates some ambiguous claims but not others, does not satisfy the statute’s definiteness requirement. In place of the “insolubly ambiguous” standard, we hold that a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. Expressing no opinion on the validity of the patent-in-suit, we remand, instructing the Federal Circuit to decide the case employing the standard we have prescribed.

[2] Authorized by the Constitution “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to ... Inventors the exclusive Right to their ... Discoveries,” Art. I, § 8, cl. 8, Congress has enacted patent laws rewarding inventors with a limited monopoly. “Th[at] monopoly is a property right,” and “like any property right, its boundaries *902 should be clear.” *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 730, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002). See also *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) (“It has long been understood that a patent must describe the exact scope of an invention and its manufacture....”). Thus, when Congress enacted the first Patent Act in 1790, it directed that patent grantees file a written specification “containing a description ... of the thing or things ... invented or discovered,” which “shall be so particular” as to “distinguish the invention or discovery from other things before known **2125 and used.” Act of Apr. 10, 1790, § 2, 1 Stat. 110.

The patent laws have retained this requirement of definiteness even as the focus of patent construction has shifted. Under early patent practice in the United States, we have recounted, it was the written specification that “represented the key to the patent.” *Markman*, 517 U.S., at 379, 116 S.Ct. 1384. Eventually, however, patent applicants began to set out the invention’s scope in a separate section known as the “claim.” See generally I R. Moy, Walker on Patents § 4.2, pp. 4–17 to 4–20 (4th ed. 2012). The Patent Act of 1870 expressly conditioned the receipt of a patent on the inventor’s inclusion of one or more such claims, described with particularity and distinctness. See Act of July 8, 1870, § 26, 16 Stat. 201 (to obtain a patent, the inventor must “particularly point out and distinctly claim the part, improvement, or combination which [the inventor] claims as his invention or discovery”).

The 1870 Act’s definiteness requirement survives today, largely unaltered. Section 112 of the Patent Act of 1952, applicable to this case, requires the patent applicant to conclude the specification with “one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2 (2006 ed.). A lack of definiteness renders invalid “the patent or any claim in suit.” § 282, ¶ 2(3).¹

*903 II

A

The patent in dispute, U.S. Patent No. 5,337,753 (*’753 patent*), issued to Dr. Gregory Lekhtman in 1994 and assigned to respondent Biosig Instruments, Inc., concerns a heart-rate monitor for use during exercise. Previous heart-rate monitors, the patent asserts, were often inaccurate in measuring the electrical signals accompanying each heartbeat (*electrocardiograph* or ECG signals). The inaccuracy was caused by electrical signals of a different sort, known as *electromyogram* or EMG signals, generated by an exerciser’s skeletal muscles when, for example, she moves her arm, or grips an exercise monitor with her hand. These EMG signals can “mask” ECG signals and thereby impede their detection. App. 52, 147.

Dr. Lekhtman’s invention claims to improve on prior art by eliminating that impediment. The invention focuses on a key difference between EMG and ECG waveforms: while ECG signals detected from a user’s left hand have a polarity opposite to that of the signals detected from her right hand,² EMG signals from each hand have the same polarity. The patented device works by measuring equalized EMG signals detected at each hand and then using circuitry to subtract the identical EMG signals from each other, thus filtering out the EMG interference.

**2126 As relevant here, the *’753 patent* describes a heart-rate monitor contained in a hollow cylindrical bar that a user *904 grips with both hands, such that each hand comes into contact with two electrodes, one “live” and one “common.” The device is illustrated in figure 1 of the patent, *id.*, at 41, reproduced in the Appendix to this opinion.

Claim 1 of the *’753 patent*, which contains the limitations critical to this dispute, refers to a “heart rate monitor for use by a user in association with exercise apparatus and/or exercise procedures.” *Id.*, at 61. The claim “comprise[s],” among other elements, an “elongate member” (cylindrical bar) with a display device; “electronic circuitry including a difference amplifier”; and, on each half of the cylindrical bar, a live electrode and a common electrode “mounted ... in spaced relationship with each other.” *Ibid.*³ The claim sets forth additional elements, including that the cylindrical bar is to be held in such a way that each of the user’s hands “contact[s]” both electrodes on each side of the bar. *Id.*, at 62. Further, the EMG signals detected by the two electrode pairs are to be “of substantially equal magnitude and phase” so that the difference amplifier will

“produce a substantially zero [EMG] signal” upon subtracting the signals from one another. *Ibid.*

B

The dispute between the parties arose in the 1990’s, when Biosig allegedly disclosed the patented technology to StairMaster Sports Medical Products, Inc. According to Biosig, StairMaster, without ever obtaining a license, sold exercise machines that included Biosig’s patented technology, and petitioner Nautilus, Inc., continued to do so after acquiring the StairMaster brand. In 2004, based on these allegations, Biosig brought a patent infringement suit against Nautilus in the U.S. District Court for the Southern District of New York.

905** With Biosig’s lawsuit launched, Nautilus asked the U.S. Patent and Trademark Office (PTO) to reexamine the [’753 patent](#). The reexamination proceedings centered on whether the patent was anticipated or rendered obvious by prior art—principally, a patent issued in 1984 to an inventor named Fujisaki, which similarly disclosed a heart-rate monitor using two pairs of electrodes and a difference amplifier. Endeavoring to distinguish the [’753 patent](#) from prior art, Biosig submitted a declaration from Dr. Lekhtman. The declaration attested, among other things, that the [’753 patent](#) sufficiently informed a person skilled in the art how to configure the detecting electrodes so as “to produce equal EMG [signals] from the left and right hands.” *Id.*, at 160. Although the electrodes’ design variables—including spacing, shape, size, and material—cannot be standardized across all exercise machines, Dr. Lekhtman explained, a skilled artisan could undertake a “trial and error” process of equalization. This would entail experimentation with different electrode configurations in order to optimize EMG signal cancellation. *Id.*, at 155–156, 158.⁴ *2127** In 2010, the PTO issued a determination confirming the patentability of the [’753 patent](#)’s claims.

Biosig thereafter reinstated its infringement suit, which the parties had voluntarily dismissed without prejudice while PTO reexamination was underway. In 2011, the District Court conducted a hearing to determine the proper construction of the patent’s claims, see *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) (claim construction is a matter of law reserved for court decision), including the ***906** claim term “in spaced relationship with each other.” According to Biosig, that “spaced relationship” referred

to the distance between the live electrode and the common electrode in each electrode pair. Nautilus, seizing on Biosig’s submissions to the PTO during the reexamination, maintained that the “spaced relationship” must be a distance “greater than the width of each electrode.” App. 245. The District Court ultimately construed the term to mean “there is a defined relationship between the live electrode and the common electrode on one side of the cylindrical bar and the same or a different defined relationship between the live electrode and the common electrode on the other side of the cylindrical bar,” without any reference to the electrodes’ width. App. to Pet. for Cert. 43a–44a.

Nautilus moved for summary judgment, arguing that the term “spaced relationship,” as construed, was indefinite under § 112, ¶ 2. The District Court granted the motion. Those words, the District Court concluded, “did not tell [the court] or anyone what precisely the space should be,” or even supply “any parameters” for determining the appropriate spacing. *Id.*, at 72a.

The Federal Circuit reversed and remanded. A claim is indefinite, the majority opinion stated, “only when it is ‘not amenable to construction’ or ‘insolubly ambiguous.’” 715 F.3d 891, 898 (2013) (quoting *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (C.A.Fed.2005)). Under that standard, the majority determined, the [’753 patent](#) survived indefiniteness review. Considering first the “intrinsic evidence”—*i.e.*, the claim language, the specification, and the prosecution history—the majority discerned “certain inherent parameters of the claimed apparatus, which to a skilled artisan may be sufficient to understand the metes and bounds of ‘spaced relationship.’” 715 F.3d, at 899. These sources of meaning, the majority explained, make plain that the distance separating the live and common electrodes on ***907** each half of the bar “cannot be greater than the width of a user’s hands”; that is so “because claim 1 requires the live and common electrodes to independently detect electrical signals at two distinct points of a hand.” *Ibid.* Furthermore, the majority noted, the intrinsic evidence teaches that this distance cannot be “infinitesimally small, effectively merging the live and common electrodes into a single electrode with one detection point.” *Ibid.* The claim’s functional provisions, the majority went on to observe, shed additional light on the meaning of “spaced relationship.” Surveying the record before the PTO on reexamination, the majority concluded that a skilled artisan would know that she could attain the indicated functions of equalizing and removing EMG signals by adjusting design variables, including spacing.

In a concurring opinion, Judge Schall reached the majority's result employing "a more limited analysis." *Id.*, at 905. Judge Schall accepted the majority's recitation of the definiteness standard, under which claims amenable to construction are nonetheless indefinite when "the construction remains insolubly ambiguous." *Ibid.* (internal **2128 quotation marks omitted). The District Court's construction of "spaced relationship," Judge Schall maintained, was sufficiently clear: the term means "there is a fixed spatial relationship between the live electrode and the common electrode" on each side of the cylindrical bar. *Ibid.* Judge Schall agreed with the majority that the intrinsic evidence discloses inherent limits of that spacing. But, unlike the majority, Judge Schall did not "presum[e] a functional linkage between the 'spaced relationship' limitation and the removal of EMG signals." *Id.*, at 906. Other limitations of the claim, in his view, and not the "'spaced relationship' limitation itself," "included a functional requirement to remove EMG signals." *Ibid.*

We granted certiorari, 571 U.S. —, 134 S.Ct. 896, 187 L.Ed.2d 702 (2014), and now vacate and remand.

*908 III

A

¹³¹ ¹⁴¹ ¹⁵¹ Although the parties here disagree on the dispositive question—does the '753 patent withstand definiteness scrutiny—they are in accord on several aspects of the § 112, ¶ 2 inquiry. First, definiteness is to be evaluated from the perspective of someone skilled in the relevant art. See, e.g., *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 371, 58 S.Ct. 899, 82 L.Ed. 1402 (1938). See also § 112, ¶ 1 (patent's specification "shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same" (emphasis added)). Second, in assessing definiteness, claims are to be read in light of the patent's specification and prosecution history. See, e.g., *United States v. Adams*, 383 U.S. 39, 48–49, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966) (specification); *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722,

741, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002) (prosecution history). Third, "[d]efiniteness is measured from the viewpoint of a person skilled in [the] art at the time the patent was filed." Brief for Respondent 55 (emphasis added). See generally Sarnoff & Manzo, An Introduction to, Premises of, and Problems With Patent Claim Construction, in *Patent Claim Construction in the Federal Circuit 9* (E. Manzo ed. 2014) ("Patent claims ... should be construed from an objective perspective of a [skilled artisan], based on what the applicant actually claimed, disclosed, and stated during the application process.").

The parties differ, however, in their articulations of just how much imprecision § 112, ¶ 2 tolerates. In *Nautilus'* view, a patent is invalid when a claim is "ambiguous, such that readers could reasonably interpret the claim's scope differently." Brief for Petitioner 37. *Biosig* and the Solicitor General would require only that the patent provide reasonable notice of the scope of the claimed invention. See Brief *909 for Respondent 18; Brief for United States as *Amicus Curiae* 9–10.

¹⁶¹ ¹⁷¹ Section 112, we have said, entails a "delicate balance." *Festo*, 535 U.S., at 731, 122 S.Ct. 1831. On the one hand, the definiteness requirement must take into account the inherent limitations of language. See *ibid.* Some modicum of uncertainty, the Court has recognized, is the "price of ensuring the appropriate incentives for innovation." *Id.*, at 732, 122 S.Ct. 1831. One must bear in mind, moreover, that patents are "not addressed to lawyers, or even to the public generally," but rather to those skilled in the relevant art. *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437, 22 S.Ct. 698, 46 L.Ed. 968 (1902) (also stating that "any description which is **2129 sufficient to apprise [steel manufacturers] in the language of the art of the definite feature of the invention, and to serve as a warning to others of what the patent claims as a monopoly, is sufficiently definite to sustain the patent").⁵

¹⁸¹ ¹⁹¹ At the same time, a patent must be precise enough to afford clear notice of what is claimed, thereby "appris[ing] the public of what is still open to them." " *Markman*, 517 U.S., at 373, 116 S.Ct. 1384 (quoting *McClain v. Ortmyer*, 141 U.S. 419, 424, 12 S.Ct. 76, 35 L.Ed. 800 (1891)).⁶ Otherwise there would be "[a] zone of uncertainty *910 which enterprise and experimentation may enter only at the risk of infringement claims." *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236, 63 S.Ct. 165, 87 L.Ed. 232 (1942). And absent a meaningful definiteness check, we are told, patent applicants face powerful incentives to inject ambiguity into their claims. See Brief for Petitioner 30–32 (citing patent treatises and drafting guides). See also Federal Trade Commission, *The*

Evolving IP Marketplace: Aligning Patent Notice and Remedies With Competition 85 (2011) (quoting testimony that patent system fosters “an incentive to be as vague and ambiguous as you can with your claims” and “defer clarity at all costs”).⁷ ELIMINATING THAT Temptation is in order, and “the patent drafter is in the best position to resolve the ambiguity in ... patent claims.” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1255 (C.A.Fed.2008). See also *Hormone Research Foundation, Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1563 (C.A.Fed.1990) (“It is a well-established axiom in patent law that a patentee is free to be his or her own lexicographer....”).

^[10] ^[11] To determine the proper office of the definiteness command, therefore, we must reconcile concerns that tug in opposite directions. Cognizant of the competing concerns, we read § 112, ¶ 2 to require that a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable. The standard we adopt accords with opinions of this Court stating that “the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.” *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270, 37 S.Ct. 82, 61 L.Ed. 286 (1916). See **2130 also *United *911 Carbon*, 317 U.S., at 236, 63 S.Ct. 165 (“claims must be reasonably clear-cut”); *Markman*, 517 U.S., at 389, 116 S.Ct. 1384 (claim construction calls for “the necessarily sophisticated analysis of the whole document,” and may turn on evaluations of expert testimony).

B

In resolving Nautilus’ definiteness challenge, the Federal Circuit asked whether the ’753 patent’s claims were “amenable to construction” or “insolubly ambiguous.” Those formulations can breed lower court confusion,⁸ for they lack the precision § 112, ¶ 2 demands. It cannot be sufficient that a court can ascribe *some* meaning to a patent’s claims; the definiteness inquiry trains on the understanding of a skilled artisan at the time of the patent application, not that of a court viewing matters *post hoc*. To tolerate imprecision just short of that rendering a claim “insolubly ambiguous” would diminish the definiteness requirement’s public-notice function and foster the innovation-discouraging “zone of uncertainty,” *United*

Carbon, 317 U.S., at 236, 63 S.Ct. 165, against which this Court has warned.

^[12] Appreciating that “terms like ‘insolubly ambiguous’ may not be felicitous,” Brief for Respondent 34, Biosig argues the phrase is a shorthand label for a more probing inquiry that the Federal Circuit applies in practice. The Federal Circuit’s fuller explications of the term “insolubly ambiguous,” we recognize, may come closer to tracking the statutory prescription. See, e.g., 715 F.3d, at 898 (case below) (“[I]f reasonable efforts at claim construction result in a definition that does not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim, the claim is *912 insolubly ambiguous and invalid for indefiniteness.” (internal quotation marks omitted)). But although this Court does not “micromanag[e] the Federal Circuit’s particular word choice” in applying patent-law doctrines, we must ensure that the Federal Circuit’s test is at least “probative of the essential inquiry.” *Warner–Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Falling short in that regard, the expressions “insolubly ambiguous” and “amenable to construction” permeate the Federal Circuit’s recent decisions concerning § 112, ¶ 2’s requirement.⁹ We agree with Nautilus and its *amici* that such terminology can leave courts and the patent bar at sea without a reliable compass.¹⁰

*913 **2131 IV

^[13] Both here and in the courts below, the parties have advanced conflicting arguments as to the definiteness of the claims in the ’753 patent. Nautilus maintains that the claim term “spaced relationship” is open to multiple interpretations reflecting markedly different understandings of the patent’s scope, as exemplified by the disagreement among the members of the Federal Circuit panel.¹¹ Biosig responds that “spaced relationship,” read in light of the specification and as illustrated in the accompanying drawings, delineates the permissible spacing with sufficient precision.

^[14] “[M]indful that we are a court of review, not of first view,” *Cutter v. Wilkinson*, 544 U.S. 709, 718, n. 7, 125 S.Ct. 2113, 161 L.Ed.2d 1020 (2005), we decline to apply the standard we have announced to the controversy between Nautilus and Biosig. As we have explained, the Federal Circuit invoked a standard more amorphous than the statutory definiteness requirement allows. We

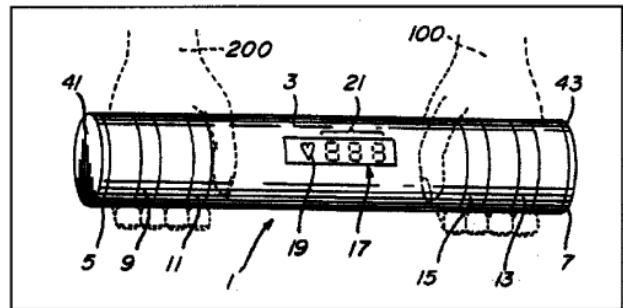
therefore follow our ordinary practice of remanding so that the Court of Appeals can reconsider, under the proper standard, whether the relevant claims in the '753 patent are sufficiently definite. See, e.g., *Johnson v. California*, 543 U.S. 499, 515, 125 S.Ct. 1141, 160 L.Ed.2d 949 (2005); *Gasperini v. Center for Humanities, Inc.*, 518 U.S. 415, 438, 116 S.Ct. 2211, 135 L.Ed.2d 659 (1996).

* * *

For the reasons stated, we vacate the judgment of the United States Court of Appeals for the Federal Circuit and remand the case for further proceedings consistent with this opinion.

It is so ordered.

APPENDIX



Patent No. 5,337,753, Figure 1

All Citations


572 U.S. 898, 134 S.Ct. 2120, 189 L.Ed.2d 37, 82 USLW 4433, 110 U.S.P.Q.2d 1688, 14 Cal. Daily Op. Serv. 6024, 2014 Daily Journal D.A.R. 6909, 24 Fla. L. Weekly Fed. S 799

Footnotes

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.
- 1 In the Leahy–Smith America Invents Act, Pub.L. 112–29, 125 Stat. 284, enacted in 2011, Congress amended several parts of the Patent Act. Those amendments modified §§ 112 and 282 in minor respects not pertinent here. In any event, the amended versions of those provisions are inapplicable to patent applications filed before September 16, 2012, and proceedings commenced before September 16, 2011. See §§ 4(e), 15(c), 20(l), 125 Stat. 297, 328, 335, notes following 35 U.S.C. §§ 2, 111, 119. Here, the application for the patent-in-suit was filed in 1992, and the relevant court proceedings were initiated in 2010. Accordingly, this opinion’s citations to the Patent Act refer to the 2006 edition of the United States Code.
- 2 This difference in polarity occurs because the heart is not aligned vertically in relation to the center of the body; the organ tilts leftward from apex to bottom. App. 213.
- 3 As depicted in figure 1 of the patent, *id.*, at 41, reproduced in the Appendix to this opinion, the live electrodes are identified by numbers 9 and 13, and the common electrodes, by 11 and 15.
- 4 Dr. Lekhtman’s declaration also referred to an expert report prepared by Dr. Henrietta Galiana, Chair of the Department of Biomedical Engineering at McGill University, for use in the infringement litigation. That report described how Dr. Galiana’s laboratory technician, equipped with a wooden dowel, wire, metal foil, glue, electrical tape, and the drawings from the '753 patent, was able in two hours to build a monitor that “worked just as described in the ... patent.” *Id.*, at 226.
- 5 See also *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 58, 65–66, 43 S.Ct. 322, 67 L.Ed. 523 (1923) (upholding as definite a patent for an improvement to a paper-making machine, which provided that a wire be placed at a “high” or “substantial elevation,” where “readers ... skilled in the art of paper making and versed in the use of the ... machine” would have “no difficulty ... in determining ... the substantial [elevation] needed” for the machine to operate as specified).
- 6 See also *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236, 63 S.Ct. 165, 87 L.Ed. 232 (1942) (“The statutory requirement of particularity and distinctness in claims is met only when they clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise.”); *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 369, 58 S.Ct. 899, 82 L.Ed. 1402 (1938) (“The limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public.”).

gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307 patentreport.pdf (as visited May 30, 2014, and available in Clerk of Court’s case file).

- 8 See, e.g., *Every Penny Counts, Inc. v. Wells Fargo Bank, N. A.*, — F.Supp.2d —, —, 2014 WL 869092, *4 (M.D.Fla., Mar. 5, 2014) (finding that “the account,” as used in claim, “lacks definiteness,” because it might mean several different things and “no informed and confident choice is available among the contending definitions,” but that “the extent of the indefiniteness ... falls far short of the ‘insoluble ambiguity’ required to invalidate the claim”).
- 9 E.g., *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1366 (C.A.Fed.2010) (“the definiteness of claim terms depends on whether those terms can be given any reasonable meaning”); *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (C.A.Fed.2005) (“Only claims ‘not amenable to construction’ or ‘insolubly ambiguous’ are indefinite.”); *Exxon Research & Engineering Co. v. United States*, 265 F.3d 1371, 1375 (C.A.Fed.2001) (“If a claim is insolubly ambiguous, and no narrowing construction can properly be adopted, we have held the claim indefinite.”). See also Dept. of Commerce, Manual of Patent Examining Procedure § 2173.02(I), p. 294 (9th ed. 2014) (PTO manual describing Federal Circuit’s test as upholding a claim’s validity “if some meaning can be gleaned from the language”).
- 10 The Federal Circuit suggests that a permissive definiteness standard “ ‘accord[s] respect to the statutory presumption of patent validity.’ ” 715 F.3d 891, 902 (2013) (quoting *Exxon Research*, 265 F.3d, at 1375). See also § 282, ¶ 1 (“[a] patent shall be presumed valid,” and “[t]he burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity”); *Microsoft Corp. v. i4i Ltd. Partnership*, 564 U.S. —, —, 131 S.Ct. 2238, 2242, 180 L.Ed.2d 131 (2011) (invalidity defenses must be proved by “clear and convincing evidence”). As the parties appear to agree, however, this presumption of validity does not alter the degree of clarity that § 112, ¶ 2 demands from patent applicants; to the contrary, it incorporates that definiteness requirement by reference. See § 282, ¶ 2(3) (defenses to infringement actions include “[i]nvalidity of the patent or any claim in suit for failure to comply with ... any requirement of [§ 112]”).
The parties nonetheless dispute whether factual findings subsidiary to the ultimate issue of definiteness trigger the clear-and-convincing-evidence standard and, relatedly, whether deference is due to the PTO’s resolution of disputed issues of fact. We leave these questions for another day. The court below treated definiteness as “a legal issue [the] court reviews without deference,” 715 F.3d, at 897, and Biosig has not called our attention to any contested factual matter—or PTO determination thereof—pertinent to its infringement claims.
- 11 Notably, however, all three panel members found Nautilus’ arguments unavailing.

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [Dynamic Concepts, Inc. v. Tri-State Surgical Supply and Equipment Ltd.](#), 2nd Cir.(N.Y.), November 8, 2017

134 S.Ct. 1749

Supreme Court of the United States

OCTANE FITNESS, LLC, Petitioner

v.

ICON HEALTH & FITNESS, INC.

No. 12–1184.

|
Argued Feb. 26, 2014.

|
Decided April 29, 2014.

Synopsis

Background: Patentee brought action against competitor alleging infringement of its patent for elliptical machine that allowed for adjustable stride length. The United States District Court for the District of Minnesota, [Ann D. Montgomery, J.](#), granted summary judgment of noninfringement, [2011 WL 2457914](#), and denied competitor’s motion for attorney fees, [2011 WL 3900975](#). Parties filed cross-appeals. The United States Court of Appeals for the Federal Circuit, [Lourie, Circuit Judge](#), [496 Fed.Appx. 57](#), affirmed, and certiorari was granted.

Holdings: The Supreme Court, Justice [Sotomayor, J.](#), held that:

[1] an “exceptional case,” within meaning of the Patent Act’s fee-shifting provision, is simply one that stands out from others with respect to the substantive strength of a party’s litigating position, considering both the governing law and the facts of the case, or the unreasonable manner in which the case was litigated, abrogating [Brooks Furniture Mfg., Inc. v. Dutailier Int’l, Inc.](#), 393 F.3d 1378, and

[2] patent litigants are not required to establish their entitlement to fees by clear and convincing evidence.

Reversed and remanded.

Justice [Scalia](#) joined in part.

West Headnotes (13)

[1] Patents Purpose and construction in general

291 Patents
291I In General
291k403 Constitutional and Statutory Provisions
291k405 Purpose and construction in general
(Formerly 291k3)

In patent law, as in all statutory construction, unless otherwise defined, words will be interpreted as taking their ordinary, contemporary, common meaning.

8 Cases that cite this headnote

[2] Patents Exceptional cases in general

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)8 Costs and Fees
291k1996 Attorney Fees
291k1998 Exceptional cases in general
(Formerly 291k325.11(2.1))

An “exceptional case,” within meaning of the Patent Act’s fee-shifting provision, is simply one that stands out from others with respect to the substantive strength of a party’s litigating position, considering both the governing law and the facts of the case, or the unreasonable manner in which the case was litigated; abrogating [Brooks Furniture Mfg., Inc. v. Dutailier Int’l, Inc.](#), 393 F.3d 1378.

1105 Cases that cite this headnote

[3] Patents Exceptional cases in general

291 Patents
291VII Patent Infringement
291VII(C) Actions

291VII(C)8Costs and Fees
291k1996Attorney Fees
291k1998Exceptional cases in general
(Formerly 291k325.11(2.1))

District courts may determine whether a case is “exceptional” under the Patent Act’s fee-shifting provision in the case-by-case exercise of their discretion, considering the totality of the circumstances; there is no precise rule or formula for making these determinations, but instead equitable discretion should be exercised in light of the considerations the Supreme Court has identified. 35 U.S.C.A. § 285.

805 Cases that cite this headnote

[4] **Patents** → Exceptional cases in general

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k1996Attorney Fees
291k1998Exceptional cases in general
(Formerly 291k325.11(2.1))

A district court may award attorney fees under the Patent Act’s fee-shifting provision in the rare case in which a party’s unreasonable conduct, while not necessarily independently sanctionable, is nonetheless so “exceptional” as to justify an award of fees. 35 U.S.C.A. § 285.

545 Cases that cite this headnote

[5] **Patents** → Exceptional cases in general

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k1996Attorney Fees
291k1998Exceptional cases in general
(Formerly 291k325.11(2.1))

A case presenting either subjective bad faith or exceptionally meritless claims may sufficiently set itself apart from mine-run cases to warrant

an attorney fees award under the Patent Act’s fee-shifting provision. 35 U.S.C.A. § 285.

209 Cases that cite this headnote

[6] **Antitrust and Trade Regulation** → Litigation; sham litigation
Constitutional Law → Antitrust

29TAntitrust and Trade Regulation
29TXIAntitrust Exemptions and Defenses
29Tk905Efforts to Influence Government Action
29Tk905(3)Litigation; sham litigation
92Constitutional Law
92XVRight to Petition for Redress of Grievances
92k1437Noerr-Pennington Doctrine
92k1437(2)Antitrust

Under the “*Noerr–Pennington* doctrine,” defendants are immune from antitrust liability for engaging in conduct, including litigation, aimed at influencing decisionmaking by the government.

45 Cases that cite this headnote

[7] **Antitrust and Trade Regulation** → Litigation; sham litigation
Constitutional Law → Noerr-Pennington Doctrine

29TAntitrust and Trade Regulation
29TXIAntitrust Exemptions and Defenses
29Tk905Efforts to Influence Government Action
29Tk905(3)Litigation; sham litigation
92Constitutional Law
92XVRight to Petition for Redress of Grievances
92k1437Noerr-Pennington Doctrine
92k1437(1)In general
(Formerly 92k1437(2))

Under a “sham exception” to the *Noerr–Pennington* doctrine, activity ostensibly directed toward influencing governmental action does not qualify for *Noerr* immunity if it is a mere sham to cover an attempt to interfere directly with the business relationships of a competitor.

43 Cases that cite this headnote

[8] **Constitutional Law** → Noerr-Pennington Doctrine

92Constitutional Law
92XVRight to Petition for Redress of Grievances
92k1437Noerr-Pennington Doctrine
92k1437(1)In general

The Supreme Court crafted the *Noerr-Pennington* doctrine, and carved out only a narrow exception for “sham” litigation, to avoid chilling the exercise of the First Amendment right to petition the government for the redress of grievances. U.S.C.A. Const.Amend. 1.

46 Cases that cite this headnote

[9] **Costs, Fees, and Sanctions** → Meritless or Bad-Faith Litigation
Costs, Fees, and Sanctions → Particular Litigation Conduct
Costs, Fees, and Sanctions → Inherent authority
Costs, Fees, and Sanctions → Reasonableness or Bad Faith

102Costs, Fees, and Sanctions
102IIIAwards of Costs and Fees
102III(A)In General; Grounds and Factors Considered
102III(A)8Meritless or Bad-Faith Litigation
102k661In general
(Formerly 170Ak2737.3)
102Costs, Fees, and Sanctions
102IIIAwards of Costs and Fees
102III(A)In General; Grounds and Factors Considered
102III(A)8Meritless or Bad-Faith Litigation
102k663Particular Litigation Conduct
102k664In general
(Formerly 170Ak2737.3)
102Costs, Fees, and Sanctions
102VISanctions
102VI(A)In General
102k1193Authority to Impose
102k1195Inherent authority
(Formerly 170Ak2757, 170Ak2737.1)
102Costs, Fees, and Sanctions

102VISanctions
102VI(B)Grounds for Imposition
102VI(B)1In General
102k1206Reasonableness or Bad Faith
102k1207In general
(Formerly 170Ak2769)

A common-law exception to the general “American rule” against fee-shifting is inherent in the power of the courts and applies for willful disobedience of a court order or when the losing party has acted in bad faith, vexatiously, wantonly, or for oppressive reasons.

37 Cases that cite this headnote

[10] **Patents** → Evidence

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k2005Proceedings to Impose; Taxation
291k2007Evidence
(Formerly 291k325.11(5))

Patent litigants are not required to establish their entitlement to fees under the Patent Act’s fee-shifting provision by clear and convincing evidence. 35 U.S.C.A. § 285.

25 Cases that cite this headnote

[11] **Patents** → Attorney Fees
Patents → Evidence

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k1996Attorney Fees
291k1997In general
(Formerly 291k325.11(2.1))
291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k2005Proceedings to Impose; Taxation
291k2007Evidence
(Formerly 291k325.11(5))

The Patent Act's fee-shifting provision demands a simple discretionary inquiry; it imposes no specific evidentiary burden. 35 U.S.C.A. § 285.

31 Cases that cite this headnote

[12] Patents → Degree of proof

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 3 Evidence
291 k1824 Degree of proof
(Formerly 291 k312(4))

Patent-infringement litigation has always been governed by a preponderance of the evidence standard, and that is the standard generally applicable in civil actions, because it allows both parties to share the risk of error in roughly equal fashion. 35 U.S.C.A. § 285.

33 Cases that cite this headnote

[13] Patents → In general; utility

291 Patents
291 X Patents Enumerated
291 k2091 In general; utility
(Formerly 291 k328(2))

US Patent 6,019,710. Cited.

**1751 Syllabus*

*545 The Patent Act's fee-shifting provision authorizes district courts to award attorney's fees to prevailing parties in "exceptional cases." 35 U.S.C. § 285. In *Brooks Furniture Mfg., Inc. v. Dutailier Int'l, Inc.*, 393 F.3d 1378, 1381, the Federal Circuit defined an "exceptional case" as one which either involves "material inappropriate conduct" or is both "objectively baseless" and "brought in subjective bad faith." *Brooks Furniture* also requires

that parties establish the "exceptional" nature of a case by "clear and convincing evidence." *Id.*, at 1382.

Respondent ICON Health & Fitness, Inc., sued petitioner Octane Fitness, LLC, for patent infringement. The District Court granted summary judgment to Octane. Octane then moved for attorney's fees under § 285. The District Court denied the motion under the *Brooks Furniture* framework, finding ICON's claim to be neither objectively baseless nor brought in subjective bad faith. The Federal Circuit affirmed.

Held: The *Brooks Furniture* framework is unduly rigid and impermissibly encumbers the statutory grant of discretion to district courts. Pp. 1755 – 1758.

(a) Section 285 imposes one and only one constraint on district courts' discretion to award attorney's fees: The power is reserved for "exceptional" cases. Because the Patent Act does not define "exceptional," the term is construed "in accordance with [its] ordinary meaning." *Sebelius v. Cloer*, 569 U.S. —, —, 133 S.Ct. 1886, 1893, 185 L.Ed.2d 1003. In 1952, when Congress used the word in § 285 (and today, for that matter), "[e]xceptional" meant "uncommon," "rare," or "not ordinary." Webster's New International Dictionary 889 (2d ed. 1934). An "exceptional" case, then, is simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated. District courts may determine whether a case is "exceptional" in the case-by-case exercise of their discretion, considering the totality of the circumstances. Cf. *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 114 S.Ct. 1023, 127 L.Ed.2d 455. Pp. 1755 – 1756.

*546 (b) The *Brooks Furniture* framework superimposes an inflexible framework onto statutory text that is inherently flexible. Pp. 1756 – 1758.

(1) *Brooks Furniture* is too restrictive in defining the two categories of cases in which fee awards are allowed. The first category—cases involving litigation or certain other misconduct—appears to extend largely to independently sanctionable conduct. But that is not the appropriate benchmark. A district court may award fees in the rare case in which a party's unreasonable, though not independently sanctionable, conduct is so "exceptional" as to justify an award. For litigation to fall within the second category, a district court must determine that the litigation is both objectively baseless and brought in subjective bad faith. But a case presenting either subjective bad faith or exceptionally meritless claims may

sufficiently set itself apart from mine-run cases to be “exceptional.” The Federal Circuit imported this second category from *Professional Real Estate Investors, Inc. v. Columbia Pictures Industries, Inc.*, 508 U.S. 49, 113 S.Ct. 1920, 123 L.Ed.2d 611, but that case’s standard finds no roots in § 285’s text and makes little sense in the context of the exceptional-case determination. Pp. 1756 – 1758.

(2) *Brooks Furniture* is so demanding that it would appear to render § 285 largely superfluous. Because courts already possess the inherent power to award fees in cases involving misconduct or bad faith, see *Alyeska Pipeline Service Co. v. Wilderness Society*, 421 U.S. 240, 258–259, 95 S.Ct. 1612, 44 L.Ed.2d 141, this Court has declined to construe fee-shifting provisions narrowly so as to avoid rendering them superfluous. See, e.g., *Christiansburg Garment Co. v. EEOC*, 434 U.S. 412, 419, 98 S.Ct. 694, 54 L.Ed.2d 648. Pp. 1757 – 1758.

(3) *Brooks Furniture*’s requirement that proof of entitlement to fees be made by clear and convincing evidence is not justified by § 285, which imposes no specific evidentiary burden. Nor has this Court interpreted comparable fee-shifting statutes to require such a burden of proof. See, e.g., *Fogerty*, 510 U.S., at 519, 114 S.Ct. 1023. P. 1758.

496 Fed.Appx. 57, reversed and remanded.

SOTOMAYOR, J., delivered the opinion of the Court, in which ROBERTS, C.J., and KENNEDY, THOMAS, GINSBURG, BREYER, ALITO, and KAGAN, JJ., joined, and in which SCALIA, J., joined except as to footnotes 1–3.

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Respondent.

Opinion

Justice SOTOMAYOR delivered the opinion of the Court.*

*548 Section 285 of the Patent Act authorizes a district court to award attorney’s fees in patent litigation. It provides, in its entirety, that “[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party.” 35 U.S.C. § 285. In *Brooks Furniture Mfg., Inc. v. Dutailier Int’l, Inc.*, 393 F.3d 1378 (2005), the United States Court of Appeals for the Federal Circuit held that “[a] case may be deemed exceptional” under § 285 only in two limited circumstances: “when there has been some material inappropriate conduct,” or when the litigation is both “brought in subjective bad faith” and “objectively baseless.” *Id.*, at 1381. The question before us is whether the *Brooks Furniture* framework **1753 is consistent with the statutory text. We hold that it is not.

I

A

Prior to 1946, the Patent Act did not authorize the awarding of attorney’s fees to the prevailing party in patent litigation. Rather, the “American Rule” governed: “[E]ach litigant pa[id] his own attorney’s fees, win or lose....” *Marx v. General Revenue Corp.*, 568 U.S. —, —, 133 S.Ct. 1166, 1175, 185 L.Ed.2d 242 (2013). In 1946, Congress amended the Patent Act to add a discretionary fee-shifting provision, then codified in § 70, which stated that a court “may in its discretion award reasonable attorney’s fees to the prevailing party upon the entry of judgment in any patent case.” 35 U.S.C. § 70 (1946 ed.).¹

Courts did not award fees under § 70 as a matter of course. They viewed the award of fees not “as a penalty for failure to win a patent infringement suit,” but as appropriate “only in extraordinary circumstances.” *Park-In-Theatres, Inc. v. Perkins*, 190 F.2d 137, 142 (C.A.9 1951). The provision enabled them to address

“unfairness or bad faith in the conduct of the losing party, or some other equitable consideration of similar force,” which made a case so unusual as to warrant fee-shifting. *Ibid.*; see also *Pennsylvania Crusher Co. v. Bethlehem Steel Co.*, 193 F.2d 445, 451 (C.A.3 1951) (listing as “adequate justification[s]” for fee awards “fraud practiced on the Patent Office or vexatious or unjustified litigation”).

Six years later, Congress amended the fee-shifting provision and recodified it as § 285. Whereas § 70 had specified that a district court could “in its discretion award reasonable attorney’s fees to the prevailing party,” the revised language of § 285 (which remains in force today) provides that “[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party.” We have observed, in interpreting the damages provision of the Patent Act, that the addition of the phrase “exceptional cases” to § 285 was “for purposes of clarification only.”² *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 653, n. 8, 103 S.Ct. 2058, 76 L.Ed.2d 211 (1983); see also *id.*, at 652, n. 6, 103 S.Ct. 2058. And the parties agree that the recodification did not substantively alter the meaning of the statute.³

For three decades after the enactment of § 285, courts applied it—as they had applied § 70—in a discretionary manner, assessing various factors to determine whether a given case *550 was sufficiently “exceptional” to warrant a fee award. See, e.g., *True Temper Corp. v. CF & I Steel Corp.*, 601 F.2d 495, 508–509 (C.A.10 1979); *Kearney & Trecker Corp. v. Giddings & Lewis, Inc.*, 452 F.2d 579, 597 (C.A.7 1971); **1754 *Siebring v. Hansen*, 346 F.2d 474, 480–481 (C.A.8 1965).

In 1982, Congress created the Federal Circuit and vested it with exclusive appellate jurisdiction in patent cases. 28 U.S.C. § 1295. In the two decades that followed, the Federal Circuit, like the regional circuits before it, instructed district courts to consider the totality of the circumstances when making fee determinations under § 285. See, e.g., *Rohm & Haas Co. v. Crystal Chemical Co.*, 736 F.2d 688, 691 (C.A.Fed.1984) (“Cases decided under § 285 have noted that ‘the substitution of the phrase “in exceptional cases” has not done away with the discretionary feature’ ”); *Yamanouchi Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1347 (C.A.Fed.2000) (“In assessing whether a case qualifies as exceptional, the district court must look at the totality of the circumstances”).

In 2005, however, the Federal Circuit abandoned that holistic, equitable approach in favor of a more rigid and mechanical formulation. In *Brooks Furniture Mfg., Inc. v.*

Detailier Int’l, Inc., 393 F.3d 1378 (2005), the court held that a case is “exceptional” under § 285 only “when there has been some material inappropriate conduct related to the matter in litigation, such as willful infringement, fraud or inequitable conduct in procuring the patent, misconduct during litigation, vexatious or unjustified litigation, conduct that violates Fed.R.Civ.P. 11, or like infractions.” *Id.*, at 1381. “Absent misconduct in conduct of the litigation or in securing the patent,” the Federal Circuit continued, fees “may be imposed against the patentee only if both (1) the litigation is brought in subjective bad faith, and (2) the litigation is objectively baseless.” *Ibid.* The Federal Circuit subsequently clarified that litigation is objectively baseless only if it is “so unreasonable that no reasonable litigant could believe it would *551 succeed,” *iLOR, LLC v. Google, Inc.*, 631 F.3d 1372, 1378 (2011), and that litigation is brought in subjective bad faith only if the plaintiff “actually know[s]” that it is objectively baseless, *id.*, at 1377.⁴

Finally, *Brooks Furniture* held that because “[t]here is a presumption that the assertion of infringement of a duly granted patent is made in good faith[,] ... the underlying improper conduct and the characterization of the case as exceptional must be established by clear and convincing evidence.” 393 F.3d, at 1382.

B

The parties to this litigation are manufacturers of exercise equipment. The respondent, ICON Health & Fitness, Inc., owns U.S. Patent No. 6,019,710 (‘710 patent), which discloses an elliptical exercise machine that allows for adjustments to fit the individual stride paths of users. ICON is a major manufacturer of exercise equipment, **1755 but it has never commercially sold the machine disclosed in the ‘710 patent. The petitioner, Octane Fitness, LLC, also manufactures exercise equipment, including elliptical machines known as the Q45 and Q47.

*552 ICON sued Octane, alleging that the Q45 and Q47 infringed several claims of the ‘710 patent. The District Court granted Octane’s motion for summary judgment, concluding that Octane’s machines did not infringe ICON’s patent. 2011 WL 2457914 (D.Minn., June 17, 2011). Octane then moved for attorney’s fees under § 285. Applying the *Brooks Furniture* standard, the District Court denied Octane’s motion. 2011 WL 3900975 (D.Minn., Sept. 6, 2011). It determined that Octane could show neither that ICON’s claim was objectively baseless

nor that ICON had brought it in subjective bad faith. As to objective baselessness, the District Court rejected Octane's argument that the judgment of noninfringement "should have been a foregone conclusion to anyone who visually inspected" Octane's machines. *Id.*, *2. The court explained that although it had rejected ICON's infringement arguments, they were neither "frivolous" nor "objectively baseless." *Id.*, *2-*3. The court also found no subjective bad faith on ICON's part, dismissing as insufficient both "the fact that [ICON] is a bigger company which never commercialized the '710 patent'" and an e-mail exchange between two ICON sales executives, which Octane had offered as evidence that ICON had brought the infringement action "as a matter of commercial strategy." *Id.*, *4.

*553 ICON appealed the judgment of noninfringement, and Octane cross-appealed the denial of attorney's fees. The Federal Circuit affirmed both orders. 496 Fed.Appx. 57 (2012). In upholding the denial of attorney's fees, it rejected Octane's argument that the District Court had "applied an overly restrictive standard in refusing to find the case exceptional under § 285." *Id.*, at 65. The Federal Circuit declined to "revisit the settled standard for exceptionality." *Ibid.*

We granted certiorari, 570 U.S. —, 134 S.Ct. 49, 186 L.Ed.2d 962 (2013), and now reverse.

II

The framework established by the Federal Circuit in *Brooks Furniture* is unduly rigid, and it impermissibly encumbers the statutory grant of discretion to district courts.

A

Our analysis begins and ends with the text of § 285: "The court in exceptional cases may award reasonable attorney fees to the prevailing party." This text is patently clear. It imposes one and only one constraint on district courts' discretion to award attorney's fees in patent litigation: **1756 The power is reserved for "exceptional" cases.

^[1] The Patent Act does not define "exceptional," so we

construe it "in accordance with [its] ordinary meaning." *Sebelius v. Cloer*, 569 U.S. —, —, 133 S.Ct. 1886, 1893, 185 L.Ed.2d 1003 (2013); see also *Bilski v. Kappos*, 561 U.S. 593, —, 130 S.Ct. 3218, 3226, 177 L.Ed.2d 792 (2010) ("In patent law, as in all statutory construction, '[u]nless otherwise defined, "words will be interpreted as taking their ordinary, contemporary, common meaning"'). In 1952, when Congress used the word in § 285 (and today, for that matter), "[e]xceptional" meant "uncommon," "rare," or "not ordinary." Webster's New International Dictionary 889 (2d ed. 1934); see also 3 Oxford English Dictionary 374 (1933) (defining "exceptional" as "out of the ordinary course," "unusual," or "special"); Merriam-Webster's Collegiate Dictionary 435 (11th ed. 2008) *554 (defining "exceptional" as "rare"); *Noxell Corp. v. Firehouse No. 1 Bar-B-Que Restaurant*, 771 F.2d 521, 526 (C.A.D.C.1985) (R.B. Ginsburg, J., joined by Scalia, J.) (interpreting the term "exceptional" in the Lanham Act's identical fee-shifting provision, 15 U.S.C. § 1117(a), to mean "uncommon" or "not run-of-the-mill").

^[2] ^[3] We hold, then, that an "exceptional" case is simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated. District courts may determine whether a case is "exceptional" in the case-by-case exercise of their discretion, considering the totality of the circumstances.⁶ As in the comparable context of the Copyright Act, "[t]here is no precise rule or formula for making these determinations," but instead equitable discretion should be exercised "in light of the considerations we have identified." *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 534, 114 S.Ct. 1023, 127 L.Ed.2d 455 (1994).

B

1

The Federal Circuit's formulation is overly rigid. Under the standard crafted in *Brooks Furniture*, a case is "exceptional" only if a district court either finds litigation-related misconduct of an independently sanctionable magnitude or determines that the litigation was both "brought in subjective bad faith" and "objectively baseless." *555 393 F.3d, at 1381. This

formulation superimposes an inflexible framework onto statutory text that is inherently flexible.

¹⁴¹ For one thing, the first category of cases in which the Federal Circuit allows fee awards—those involving litigation misconduct or certain other misconduct—appears to extend largely to independently sanctionable conduct. See *ibid.* (defining litigation-related misconduct to include “willful infringement, fraud or inequitable conduct in procuring the patent, misconduct during litigation, vexatious or unjustified litigation, conduct that violates Fed.R.Civ.P. 11, or like infractions”). But sanctionable conduct is not the appropriate benchmark. Under the standard announced ****1757** today, a district court may award fees in the rare case in which a party’s unreasonable conduct—while not necessarily independently sanctionable—is nonetheless so “exceptional” as to justify an award of fees.

¹⁵¹ The second category of cases in which the Federal Circuit allows fee awards is also too restrictive. In order for a case to fall within this second category, a district court must determine *both* that the litigation is objectively baseless *and* that the plaintiff brought it in subjective bad faith. But a case presenting either subjective bad faith or exceptionally meritless claims may sufficiently set itself apart from mine-run cases to warrant a fee award. Cf. *Noxell*, 771 F.2d, at 526 (“[W]e think it fair to assume that Congress did not intend rigidly to limit recovery of fees by a [Lanham Act] defendant to the rare case in which a court finds that the plaintiff ‘acted in bad faith, vexatiously, wantonly, or for oppressive reasons’.... Something less than ‘bad faith,’ we believe, suffices to mark a case as ‘exceptional’”).

¹⁶¹ ¹⁷¹ ICON argues that the dual requirement of “subjective bad faith” and “objective baselessness” follows from this Court’s decision in *Professional Real Estate Investors, Inc. v. Columbia Pictures Industries, Inc.*, 508 U.S. 49, 113 S.Ct. 1920, 123 L.Ed.2d 611 (1993) (*PRE*), which involved an exception to the *Noerr–Pennington* doctrine of antitrust law. It does not. Under the *Noerr–Pennington* doctrine—established by *Eastern Railroad Presidents Conference v. Noerr Motor Freight, Inc.*, 365 U.S. 127, 81 S.Ct. 523, 5 L.Ed.2d 464 (1961), and *United Mine Workers v. Pennington*, 381 U.S. 657, 85 S.Ct. 1585, 14 L.Ed.2d 626 (1965)—defendants are immune from antitrust liability for engaging in conduct (including litigation) aimed at influencing decisionmaking by the government. *PRE*, 508 U.S., at 56, 113 S.Ct. 1920. But under a “sham exception” to this doctrine, “activity ‘ostensibly directed toward influencing governmental action’ does not qualify for *Noerr* immunity if it ‘is a mere sham to cover ... an

attempt to interfere directly with the business relationships of a competitor.’” *Id.*, at 51, 113 S.Ct. 1920. In *PRE*, we held that to qualify as a “sham,” a “lawsuit must be objectively baseless” and must “conceal[] ‘an attempt to interfere directly with the business relationships of a competitor....’” *Id.*, at 60–61, 113 S.Ct. 1920 (emphasis deleted). In other words, the plaintiff must have brought baseless claims in an attempt to thwart competition (*i.e.*, in bad faith).

¹⁸¹ In *Brooks Furniture*, the Federal Circuit imported the *PRE* standard into § 285. See 393 F.3d, at 1381. But the *PRE* standard finds no roots in the text of § 285, and it makes little sense in the context of determining whether a case is so “exceptional” as to justify an award of attorney’s fees in patent litigation. We crafted the *Noerr–Pennington* doctrine—and carved out only a narrow exception for “sham” litigation—to avoid chilling the exercise of the First Amendment right to petition the government for the redress of grievances. See *PRE*, 508 U.S., at 56, 113 S.Ct. 1920 (“Those who petition government for redress are generally immune from antitrust liability”). But to the extent that patent suits are similarly protected as acts of petitioning, it is not clear why the shifting of fees in an “exceptional” case would diminish that right. The threat of antitrust liability (and the attendant treble damages, 15 U.S.C. § 15) far more significantly chills the exercise of the right to petition than does the mere shifting of attorney’s fees. In the *Noerr–Pennington* context, defendants seek immunity from a judicial declaration that their filing ***557** of a ****1758** lawsuit was actually unlawful; here, they seek immunity from a far less onerous declaration that they should bear the costs of that lawsuit in exceptional cases.

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¹⁹¹ We reject *Brooks Furniture* for another reason: It is so demanding that it would appear to render § 285 largely superfluous. We have long recognized a common-law exception to the general “American rule” against fee-shifting—an exception, “inherent” in the “power [of] the courts” that applies for “‘willful disobedience of a court order’” or “‘when the losing party has ‘acted in bad faith, vexatiously, wantonly, or for oppressive reasons....’” *Alyeska Pipeline Service Co. v. Wilderness Society*, 421 U.S. 240, 258–259, 95 S.Ct. 1612, 44 L.Ed.2d 141 (1975). We have twice declined to construe fee-shifting provisions narrowly on the basis that doing so would render them superfluous, given the background exception to the American rule, see *Christiansburg Garment Co. v. EEOC*, 434 U.S. 412, 419, 98 S.Ct. 694, 54 L.Ed.2d 648

(1978); *Newman v. Piggie Park Enterprises, Inc.*, 390 U.S. 400, 402, n. 4, 88 S.Ct. 964, 19 L.Ed.2d 1263 (1968) (*per curiam*), and we again decline to do so here.

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^[10] ^[11] ^[12] Finally, we reject the Federal Circuit’s requirement that patent litigants establish their entitlement to fees under § 285 by “clear and convincing evidence,” *Brooks Furniture*, 393 F.3d, at 1382. We have not interpreted comparable fee-shifting statutes to require proof of entitlement to fees by clear and convincing evidence. See, e.g., *Fogerty*, 510 U.S., at 519, 114 S.Ct. 1023; *Cooter & Gell v. Hartmarx Corp.*, 496 U.S. 384, 110 S.Ct. 2447, 110 L.Ed.2d 359 (1990); *Pierce v. Underwood*, 487 U.S. 552, 558, 108 S.Ct. 2541, 101 L.Ed.2d 490 (1988). And nothing in § 285 justifies such a high standard of proof. Section 285 demands a simple discretionary inquiry; it imposes no specific evidentiary burden, much less such a high one. Indeed, patent-infringement litigation has always been governed by a preponderance of the evidence standard, see, e.g.,

Footnotes

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.
- * Justice SCALIA joins this opinion except as to footnotes 1–3.
- 1 This provision did “not contemplat[e] that the recovery of attorney’s fees [would] become an ordinary thing in patent suits...” S.Rep. No. 79–1503, p. 2 (1946).
- 2 The Senate Report similarly explained that the new provision was “substantially the same as” § 70, and that the “ ‘exceptional cases’ ” language was added simply to “expres[s] the intention of the [1946] statute as shown by its legislative history and as interpreted by the courts.” S.Rep. No. 82–1979, p. 30 (1952), 1952 U.S.C.C.A.N. 2394, 2423.
- 3 See Brief for Petitioner 35 (“[T]his amendment was not intended to create a stricter standard for fee awards, but instead was intended to clarify and endorse the already-existing statutory standard”); Brief for Respondent 17 (“When it enacted § 285, as the historical notes to this provision make clear, Congress adopted the standards applied by courts interpreting that statute’s predecessor, § 70 of the 1946 statute. Congress explained that § 285 ‘is substantially the same as the corresponding provision in’ § 70”).
- 4 In *Kilopass Technology, Inc. v. Sidense Corp.*, 738 F.3d 1302 (C.A.Fed.2013)—decided after our grant of certiorari but before we heard oral argument in this case—the Federal Circuit appeared to cut back on the “subjective bad faith” inquiry, holding that the language in *iLOR* was dictum and that “actual knowledge of baselessness is not required.” 738 F.3d, at 1310. Rather, the court held, “a defendant need only prove reckless conduct to satisfy the subjective component of the § 285 analysis,” *ibid.*, and courts may “dra[w] an inference of bad faith from circumstantial evidence thereof when a patentee pursues claims that are devoid of merit,” *id.*, at 1311. Most importantly, the Federal Circuit stated that “[o]bjective baselessness alone can create a sufficient inference of bad faith to establish exceptionality under § 285, unless the circumstances as a whole show a lack of recklessness on the patentee’s part.” *Id.*, at 1314. Chief Judge Rader wrote a concurring opinion that sharply criticized *Brooks Furniture*, 738 F.3d, at 1318–1320; the court, he said, “should have remained true to its original reading of” § 285, *id.*, at 1320.
- 5 One e-mail, sent from ICON’s Vice President of Global Sales to two employees, read: “ ‘We are suing Octane. Not only are we

*Bene v. *558 Jeantet*, 129 U.S. 683, 688, 9 S.Ct. 428, 32 L.Ed. 803 (1889), and that is the “standard generally applicable in civil actions,” because it “allows both parties to ‘share the risk of error in roughly equal fashion,’ ” *Herman & MacLean v. Huddleston*, 459 U.S. 375, 390, 103 S.Ct. 683, 74 L.Ed.2d 548 (1983).

* * *

For the foregoing reasons, the judgment of the United States Court of Appeals for the Federal Circuit is reversed, and the case is remanded for further proceedings consistent with this opinion.


It is so ordered.

All Citations

572 U.S. 545, 134 S.Ct. 1749, 188 L.Ed.2d 816, 82 USLW 4330, 110 U.S.P.Q.2d 1337, 14 Cal. Daily Op. Serv. 4594, 2014 Daily Journal D.A.R. 5346, 24 Fla. L. Weekly Fed. S 726

coming out with a greater product to go after them, but throwing a lawsuit on top of that.’ ” 2011 WL 3900975, *4. One of the recipients then forwarded that e-mail to a third party, along with the accompanying message: “ ‘Just clearing the way and making sure you guys have all your guns loaded!’ ” *Ibid.* More than a year later, that same employee sent an e-mail to the Vice President of Global Sales with the subject, “ ‘I heard we are suing Octane!’ ” *Ibid.* The executive responded as follows: “ ‘Yes—old patent we had for a long time that was sitting on the shelf. They are just looking for royalties.’ ” *Ibid.* The District Court wrote that “in the light most favorable to Octane, these remarks are stray comments by employees with no demonstrated connection to the lawsuit.” *Ibid.*

- 6 In *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 114 S.Ct. 1023, 127 L.Ed.2d 455 (1994), for example, we explained that in determining whether to award fees under a similar provision in the Copyright Act, district courts could consider a “nonexclusive” list of “factors,” including “frivolousness, motivation, objective unreasonableness (both in the factual and legal components of the case) and the need in particular circumstances to advance considerations of compensation and deterrence.” *Id.*, at 534, n. 19, 114 S.Ct. 1023 (internal quotation marks omitted).

 KeyCite Yellow Flag - Negative Treatment
Criticized by *Central Soya Co., Inc. v. Geo. A. Hormel & Co.*,
Fed.Cir.(Okla.), December 27, 1983

575 F.2d 1152
United States Court of Appeals,
Sixth Circuit.

PANDUIT CORP., Plaintiff-Appellant,
v.
STAHLIN BROS. FIBRE WORKS, INC.,
Defendant-Appellee.

No. 75-2417.

Argued Nov. 29, 1977.

Decided April 25, 1978.

Synopsis

In patent infringement suit, following finding of infringement, 298 F.Supp. 435, affirmed, 430 F.2d 221, and contempt adjudication, 338 F.Supp. 1240, affirmed, 476 F.2d 1286, the United States District Court for the Western District of Michigan, Southern Division, Noel P. Fox, Chief Judge, adopted report of special master awarding plaintiff as damages reasonable royalty of 21/2%, and plaintiff appealed. The Court of Appeals, Markey, Chief Judge, sitting by designation, held that: (1) finding of master upheld by district court that there was insufficient evidence from which a fair determination could be made as to amount of profit patentee would have made on sales lost to the infringer, because of lack of evidence on patentee's fixed costs, was not clearly erroneous; (2) 21/2% royalty rate recommended by master and adopted by district court was clearly erroneous, it being based in large part on erroneous finding that there were "acceptable" noninfringing substitutes during the relevant period, and (3) computation of royalty was erroneously based on infringer's actual overall profit in all its products and on absence of proof of actual profit in the infringing sales.

Reversed and remanded.

West Headnotes (15)

[1] Patents Elements, measure, and amount

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k 1910 Damages
291 k 1912 Elements, measure, and amount
(Formerly 291 k 319(1))

To obtain as damages profits on sales he would have made absent infringement, i. e., the sales made by infringer, patent owner must prove demand for the patented product, absence of acceptable noninfringing substitutes, his manufacturing and marketing capability to exploit the demand, and the amount of profit he would have made. 35 U.S.C.A. § 284.

392 Cases that cite this headnote

[2] Patents Profits and damages

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 7 Appellate Review
291 k 1965 Scope, Standard, and Extent of Review
291 k 1970 Particular Matters
291 k 1970 (17) Relief
291 k 1970 (19) Profits and damages
(Formerly 291 k 324.55(2))

Finding of master upheld by district court in patent infringement suit that there was insufficient evidence from which a fair determination could be made as to amount of profit patentee would have made on sales lost to the infringer, because of lack of evidence on patentee's fixed costs, was not clearly erroneous.

82 Cases that cite this headnote

[3] Patents Reference of accounting under decree

291 Patents

291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1925Reference of accounting under decree
(Formerly 291k322)

Rule with respect to master's prescribing form of statement of accounts is discretionary, and in patent infringement suit there was no abuse of discretion in failure of master to require a statement taking into account patent owner's omitted costs which rendered insufficient its evidence as to the amount of profits it would have made but for the infringement. Fed.Rules Civ.Proc. rule 53(d)(3), 28 U.S.C.A.

2 Cases that cite this headnote

[4] **Patents** → Profits and damages

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review
291k1965Scope, Standard, and Extent of Review
291k1970Particular Matters
291k1970(17)Relief
291k1970(19)Profits and damages
(Formerly 291k324.55(2))

Finding in patent infringement suit that price reduction initiated by infringer resulted in net increase in profits to plaintiff was not clearly erroneous.

[5] **Patents** → Reasonable royalty; hypothetical negotiation

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1910Damages
291k1914Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

When actual damages cannot be proved, patent owner is entitled to "reasonable royalty," which

is an amount which a person desiring to manufacture and sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make and sell the patented article in the market at a reasonable profit. 35 U.S.C.A. §§ 261, 271, 284.

55 Cases that cite this headnote

[6] **Patents** → Reasonable royalty; hypothetical negotiation

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1910Damages
291k1914Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

Setting of reasonable royalty after infringement may not be treated as the equivalent of ordinary royalty negotiations among truly "willing" patent owners and licensees, and among the relevant factors are what patentee's property was, to what extent infringer has taken it, its usefulness and commercial value as shown by its advantages over other things and by the extent of its use, and the commercial situation.

58 Cases that cite this headnote

[7] **Patents** → Laws of nature, natural phenomena, and abstract ideas; fundamental principles

291Patents
291IIPatentability and Validity
291II(B)Eligible Subject Matter
291k450Exceptions to Eligibility; Ineligible Subject Matter
291k452Laws of nature, natural phenomena, and abstract ideas; fundamental principles
(Formerly 291k16.2)

"Ideas" are not patentable; only particular physical embodiments, i. e., particular "uses," of ideas are subject to patenting.

[8] **Patents** ➡ Elements, measure, and amount

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1912 Elements, measure, and amount
(Formerly 291k319(1))

Infringer cannot expect to pay a lesser royalty as compensation for its infringement on the ground that it was not the only infringer. 35 U.S.C.A. § 284.

[9 Cases that cite this headnote](#)

[9] **Patents** ➡ Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

Inability of defendant to avoid infringement and its continuing to make and sell infringing devices after plaintiff had instituted infringement suit and after trial court's injunction was evidence of the absence of acceptable substitute, for purposes of computing reasonable royalty as compensation for infringement, and fact that defendant, when finally forced to obey the court's injunction, was successful in "switching" customers to a noninfringing product did not destroy the advantage-recognition attributable to the patent over the prior 15 years.

[31 Cases that cite this headnote](#)

[10] **Patents** ➡ Profits and damages

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(17) Relief
291k1970(19) Profits and damages
(Formerly 291k324.55(2))

In patent infringement suit, 2½% royalty rate recommended by master and adopted by district court as reasonable compensation was clearly erroneous in that it was based in large part on erroneous findings that there were acceptable noninfringing substitutes, that, as a result, patentee could not have maintained its high price differential and that parties were aware of the probability of future price cut. 35 U.S.C.A. § 284.

[7 Cases that cite this headnote](#)

[11] **Patents** ➡ Profits and damages

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(17) Relief
291k1970(19) Profits and damages
(Formerly 291k324.55(2))

Reliance on testimony of expert in determining reasonable royalty as compensation for patent infringement was clearly erroneous where expert's testimony was in substantial conflict with established case law. 35 U.S.C.A. § 284.

[11 Cases that cite this headnote](#)

[12] **Patents** ➡ Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k 1910 Damages
291 k 1914 Reasonable royalty; hypothetical negotiation
(Formerly 291 k 319(1))

In patent infringement suit, it was error to compute reasonable royalty as compensation for infringement on basis of infringer's actual overall profit in all of its products and upon absence of proof of its actual profit on its infringing sales; infringer's profit element, in the postjudgment "reasonable royalty" equation, is not related to infringer's actual profit nor is it designed to guarantee an actual profit to the infringer, but should be based on the customary profit allowed licensees in the industry at the time the infringement commenced, and whether infringer would have made an actual profit thereafter is irrelevant. 35 U.S.C.A. § 284.

20 Cases that cite this headnote

[13] **Patents** → Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k 1910 Damages
291 k 1914 Reasonable royalty; hypothetical negotiation
(Formerly 291 k 319(1))

Elements necessary to determination of reasonable royalty as compensation for patent infringement were patentee's actual profit margin at time infringement commenced and the customary profit allowed licensees in industry; additional factors to be considered in the instant case were lack of acceptable noninfringing substitutes, patentee's unvarying policy of not licensing its patent, future business and attendant profit patentee would expect to lose by licensing a competitor, and fact that infringed patent gave the entire marketable value to the infringed product. 35 U.S.C.A. § 284.

187 Cases that cite this headnote

[14] **Patents** → Elements, measure, and amount

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k 1910 Damages
291 k 1912 Elements, measure, and amount
(Formerly 291 k 319(1))

Royalty, if any, resulting from settlement of infringement suit between patentee and third party should not be considered evidence of an "established" royalty and thus a measure of adequate damages in separate infringement suit. 35 U.S.C.A. § 284.

11 Cases that cite this headnote

[15] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k 2091 In general; utility
(Formerly 291 k 328(2))

US Patent 3,024,301. Cited.

Attorneys and Law Firms

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A. James Valliere, Hill, Gross, Simpson, Van Santen, Steadman, Chiara & Simpson, Chicago, Ill., for defendant-appellee.
Before PHILLIPS, Chief Circuit Judge, CELEBREZZE, Circuit Judge, and MARKEY, Chief Judge of the Court of Customs and Patent Appeals.*

Opinion

MARKEY, Chief Judge.

Appeal from a judgment of the district court, Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., C.A. Nos. 4935 and G293-71 (W.D.Mich. Sept. 15, 1975), adopting, with an unpublished opinion, the report of the special master awarding plaintiff, as damages *1155 for patent infringement, a reasonable royalty of 21/2%. We reverse and remand.

Litigation Background

In 1964 plaintiff Panduit Corp. (Panduit) sued defendant Stahlin Bros. Fibre Works, Inc. (Stahlin) for infringement of Panduit's Walch patent No. 3,024,301, covering duct for wiring of electrical control systems. In 1969, the district court found claim 5 valid and infringed by the "Lok-Slot" and "Web-Slot" ducts made and sold by Stahlin, enjoined Stahlin from further infringement, and ordered an accounting. 298 F.Supp. 435, 162 USPQ 114 (W.D.Mich.1969). That judgment was affirmed on appeal. 430 F.2d 221, 166 USPQ 524 (6th Cir. 1970), cert. denied, 401 U.S. 939, 91 S.Ct. 932, 28 L.Ed.2d 218, 168 USPQ 673 (1971).

Thereafter, the district court adjudged Stahlin in contempt of the court's injunction, because of Stahlin's making and selling the "Tear Drop" duct, a colorable imitation of the infringing "Lok-Slot," 338 F.Supp. 1240, 172 USPQ 650 (W.D.Mich.1972). That judgment was also affirmed on appeal. 476 F.2d 1286, 178 USPQ 12 (6th Cir. 1973).

In 1971, the district court appointed a master to determine Panduit's damages pursuant to 35 U.S.C. s 284,¹ to take evidence, and render a report on the issues of treble damages, interest, costs, and attorney fees. The district court, in adopting in toto the master's report, considered the master's findings of fact not clearly erroneous, and stated that "the Master had correctly applied the law to the circumstances of this case." The report recommended \$44,709.60 in damages, based on a royalty of 21/2% of gross sales price, the percentage being calculated on Stahlin's testimony that its normal profit on all of its products was 4.04% and the concept that a "reasonable royalty" entailed some level of profit to the "licensee." Horvath v. McCord Radiator and Mfg. Co., 100 F.2d 326 at 335, 40 USPQ 394 at 403 (6th Cir. 1938), cert. denied, 308 U.S. 581, 60 S.Ct. 101, 84 L.Ed. 486, 43 USPQ 520

(1939).

Fact Background

The duct manufactured by Panduit was invented by its president, Jack Caveney. Panduit began to make and sell the duct in 1955, and Caveney applied for a patent in 1956. In an interference proceeding in the Patent Office, it was determined that Walch, an employee of General Electric, was the first inventor of the duct. A patent issued to General Electric, as Walch's assignee, on March 6, 1962. Panduit then acquired the Walch patent from General Electric and established a firm policy of exercising its right to that patent property, i. e., of the right to exclude others from making and selling the patented duct.

Stahlin began to manufacture and sell the "Lok-Slot" and "Web-Slot" ducts in 1957, and continued to do so after issuance of the Walch patent and its sale to Panduit in 1962. On January 1, 1963, Stahlin introduced a price cut of approximately 30% on its "Lok-Slot" and "Web-Slot" ducts.

Panduit seeks \$808,003 as damages for lost profits on lost sales over the period March 6, 1962, the date of first infringement, to August 7, 1970, the effective date of the initial injunction;² or, alternatively, a 35% reasonable royalty rate yielding \$625,940. In addition, Panduit seeks \$4,069,000 in profits lost on Panduit's own sales because of Stahlin's price cut.

Issue

The dispositive issue is whether the master's determination of a reasonable royalty was in error.

*1156 OPINION

The statute, 35 U.S.C. s 284, requires that the patent owner receive from the infringer "damages adequate to compensate for the infringement." In Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476 at 507, 84 S.Ct. 1526, 1543, 12 L.Ed.2d 457, 141 USPQ 681 at 694 (1964), the Supreme Court stated:

But the present statutory rule is that only “damages” may be recovered. These have been defined by this Court as “compensation for the pecuniary loss he (the patentee) has suffered from the infringement, without regard to the question whether the defendant has gained or lost by his unlawful acts.” *Coupe v. Royer*, 155 U.S. 565, 582, 15 S.Ct. 199, 39 L.Ed. 263. They have been said to constitute “the difference between his pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred.” *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 552, 6 S.Ct. 934, 29 L.Ed. 954. The question to be asked in determining damages is “how much had the Patent Holder and Licensee suffered by the infringement. And that question (is) primarily: had the Infringer not infringed, what would Patent Holder-Licensee have made?” (Citing *Livesay Window Co. v. Livesay Industries, Inc.*, 251 F.2d 469, 471, 116 USPQ 167, 168 (5th Cir., 1958).)

Panduit argues that the district court erred (1) in denying Panduit its lost profits due to lost sales, or, in the alternative, a 35% reasonable royalty; and (2) in denying Panduit its lost profits from its own actual sales due to Stahlin’s price cut.

Lost Profits Due to Lost Sales

[1] To obtain as damages the profits on sales he would have made absent the infringement, i. e., the sales made by the infringer, a patent owner must prove: (1) demand for the patented product, (2) absence of acceptable noninfringing substitutes, (3) his manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit he would have made. 3 R. White, *Patent Litigation: Procedure and Tactics* s 9.03(2). See, e. g., *Bros. Inc. v. W. E. Grace Mfg. Co.*, 320 F.2d 594 at 598, 138 USPQ 357 at 358 (5th Cir. 1963) and *Electric Pipe Line, Inc. v. Fluid Systems, Inc.*, 250 F.2d 697, 116 USPQ 25 (2d Cir. 1957).

It is not disputed that Panduit established elements (1) and (3). Regarding (2), the master found that: “The evidence clearly shows the existence of acceptable non-infringing substitute ducts which would have permitted the defendant to retain its customers.” That finding, as discussed below, was in error. However, Panduit is not entitled to its lost profits on lost sales in this case because of its failure to establish element (4).

[2] The district court upheld as not clearly erroneous the master’s finding that “there was insufficient evidence from which a fair determination could be made as to the

amount of profit plaintiff would have made on such sales.”

Panduit’s Achilles heel on element (4) is a lack of evidence on its fixed costs. Panduit alleges that its omission is overcome by other evidence and by *General Electric Co. v. Sciaky Bros., Inc.*, 415 F.2d 1068, 163 USPQ 257 (6th Cir. 1969). Sciaky is distinguishable and therefore not controlling on fixed costs. The accounting presented by Sciaky’s expert witnesses included some overhead expenses, but omitted others which those witnesses testified were general and “paid by Sciaky during the years in question and would not have been greater if these additional machines had been produced and sold by Sciaky.” 415 F.2d at 1075, 163 USPQ at 262. General Electric (the infringer) disputed that theory, but offered no testimony to contradict it. The court held:

Whether Sciaky’s accounting method was accurate or not was a matter to be decided on the basis of testimony in the hearing before the Master. This was the specific function of that hearing. We do not believe that this issue can properly be *1157 decided as a matter of law before this court on appeal.

415 F.2d at 1075, 163 USPQ at 262.

In the present case, Stahlin did dispute Panduit’s accounting theory, presenting its own expert witnesses to contradict it. Under Sciaky, the accuracy of the patent owner’s accounting method is “a matter to be decided on the basis of testimony in the hearing before the Master.” The master here found, on the basis of the evidence before him, and the district court agreed, that Panduit’s accounting theory was deficient. As was said in Sciaky: (W)here the District Court adopts the Master’s findings of fact, *Fed.R.Civ.P. 52(a)* provides that such findings “shall be considered as the findings of the court” which cannot be set aside unless “clearly erroneous.”

415 F.2d at 1073, 163 USPQ at 260.

We realize, as noted in Sciaky, that Panduit’s theory is “by no means novel in patent damage cases.” 415 F.2d at 1075, 163 USPQ at 262. Nevertheless, there is no evidence of record sufficient to support a conclusion that the master’s findings respecting Panduit’s omission, whether of certain fixed costs or of certain variable costs, were clearly erroneous.³

[3] Panduit’s argument that the master was required by *Fed.R.Civ.P. 53(d)(3)*⁴ to require a statement taking into account its omitted costs is without merit. The rule is discretionary, not mandatory, and it was not an abuse of the master’s discretion to refuse the requested statement.

On the issue of Panduit's lost profits on lost sales, we affirm the district court.

Stahl's Price Cut

¹⁴¹ The district court upheld as not clearly erroneous the master's finding that: "Any loss in (Panduit's) profits due to the price reduction was more than compensated by the gain in profits due to the increase in plaintiff's sales volume because of the price reduction. Thus, the price reduction resulted in a net increase in profit to the plaintiff."

The right to damages caused by price reduction stands on the same ground as that to damages caused by lost sales. *McSherry Mfg. Co. v. Dowagiac Mfg. Co.*, 163 F. 34 at 35 (6th Cir. 1908). Having accepted the master's evaluation, that the testimony of Stahl's accounting and economic experts was more credible and persuasive than that of Panduit's, we are bound, in the absence of clear evidence to the contrary, to accept as not clearly erroneous the master's finding that the price reduction in this case produced a net increase in Panduit's profits.

We affirm, therefore, the district court's refusal to award damages on the basis of Stahl's price cut.

Reasonable Royalty

¹⁵¹ When actual damages, e. g., lost profits, cannot be proved, the patent owner is entitled to a reasonable royalty. 35 U.S.C. s 284. See also *Enterprise Mfg. Co. v. Shakespeare Co.*, 141 F.2d 916 at 920, 61 USPQ 201 at 204 (6th Cir. 1944); *Egry Register Co. v. Standard Register Co.*, 23 F.2d 438 at 442 (6th Cir. 1928); *Wm. Bros Boiler and Mfg. Co. v. Gibson-Stewart Co., Inc.*, 312 F.2d 385 at 386, 136 USPQ 239 at 240 (6th Cir. 1963). A reasonable royalty is an amount "which a person, desiring to *1158 manufacture and sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make and sell the patented article, in the market, at a reasonable profit." *Goodyear Tire and Rubber Co. v. Overman Cushion Tire Co.*, 95 F.2d 978 at 984, 37 USPQ 479 at 484 (6th Cir. 1937) (citing *Rockwood v. General Fire Extinguisher Co.*, 37 F.2d 62 at 66, 4 USPQ 299 at 303 (2d Cir. 1930)), appeal dismissed on motion of counsel for petitioners, 306 U.S. 665, 59 S.Ct. 460, 83 L.Ed. 1061 (1938).

The key element in setting a reasonable royalty after

determination of validity and infringement is the necessity for return to the date when the infringement began. In the present case, that date is March 6, 1962. On that date, Panduit possessed the particular property right found to have been infringed by Stahl. On that date, Panduit had a particular profit margin, and the property right to exclude others from making, using, or selling the patented product. 35 U.S.C. s 271.⁵ At that point Stahl chose to continue the making and selling of the patented product. As a result of Stahl's election to infringe its property right, Panduit has suffered substantially. See *United States Frumentum Co. v. Lauhoff*, 216 F. 610 (6th Cir. 1917). Though unable to prove the actual amount of lost profits or to establish a damage figure resulting from Stahl's price cut, Panduit was clearly damaged by having been forced, against its will, to share sales of the patented product with Stahl. Further, Panduit has been forced into thirteen years of expensive litigation, involving \$400,000 in attorney fees, a trial, a contempt proceeding to enforce the court's injunction, a hearing on damages, and three appeals. For all this, the "damages adequate to compensate for the infringement," 35 U.S.C. s 284, have thus far been found to total \$44,709.60.⁶

Having elected to continue the manufacture and sale of the patented duct after the patent issued, and having elected to manufacture and sell a second infringing product in the face of the court's injunction, Stahl was able to make infringing sales, as found by the master, totalling \$1,788,384.

¹⁶¹ The setting of a reasonable royalty after infringement cannot be treated, as it was here, as the equivalent of ordinary royalty negotiations among truly "willing" patent owners and licensees. That view would constitute a pretense that the infringement never happened. It would also make an election to infringe a handy means for competitors to impose a "compulsory license" policy upon every patent owner.

Except for the limited risk that the patent owner, over years of litigation, might meet the heavy burden of proving the four elements required for recovery of lost profits, the infringer would have nothing to lose, and everything to gain if he could count on paying only the normal, routine royalty non-infringers might have paid. As said by this court in another context, the infringer would be in a "heads-I-win, tails-you-lose" position. *Troxel Mfg. Co. v. Schwinn Bicycle Co.*, 465 F.2d 1253 at 1257, 175 USPQ 65 at 68 (6th Cir. 1972), cert. denied, 416 U.S. 939, 94 S.Ct. 1942, 40 L.Ed.2d 290 (1974).

¹⁷¹ On the date a patent issues, a competitor which made no investment in research and development of the invention, has four options: (1) it can make and sell a non-infringing substitute product, and refrain from

making, using, or selling a product *1159 incorporating the patented invention; (2) it can make and sell the patented product, if the patent owner be willing, negotiating a license and paying a reasonable (negotiated) royalty; (3) it can simply take the invention, running the risk that litigation will ensue and that the patent will be found valid and infringed, or (4) it can take a license under option (2) and thereafter repudiate its contract, challenging the validity of the patent.⁷ Determination of a reasonable royalty, after election of option (3), cannot, without injustice, be treated as though the infringer had elected option (2) in the first place.

Determination of a “reasonable royalty” after infringement, like many devices in the law, rests on a legal fiction. Created in an effort to “compensate” when profits are not provable, the “reasonable royalty” device conjures a “willing” licensor and licensee, who like Ghosts of Christmas Past, are dimly seen as “negotiating” a “license.” There is, of course, no actual willingness on either side, and no license to do anything, the infringer being normally enjoined, as is Stahl, from further manufacture, use, or sale of the patented product.

The amount of a reasonable royalty after infringement turns on the facts of each case, as best they may be determined. Among the relevant facts are: “what plaintiff’s property was, to what extent defendant has taken it, its usefulness and commercial value as shown by its advantages over other things and by the extent of its use,” *United States Frumentum*, 216 F. at 617, and the commercial situation, *Egry*, 23 F.2d at 443.

In determining that a reasonable royalty rate here was 21/2%, the master found: (1) there were present in the market on the date of first infringement acceptable noninfringing substitutes and competing duct producers, (2) Panduit could not have maintained a high price differential in the face of competition from the substitute ducts, (3) on the hypothetical negotiation date, both Panduit and Stahl would have been aware of the competitive state of the market, and of the probability of future price cuts, including Stahl’s, (4) the testimony of Stahl’s patent law expert, Scofield, was “more credible and persuasive and more in line with the factual realities of this case” than the testimony of Panduit’s patent law expert, and (5) Stahl’s profit on gross sales of all its products for the relevant period was 4.04%, and there was “no evidence to indicate that the profit on its duct sales was significantly higher than the profit on its total sales generally.” The district court held those findings not clearly erroneous. We disagree.

In adopting the master’s report, the district court stated:

The Master based his finding that noninfringing substitutes were available principally upon the additional finding that defendant was markedly successful in switching its customers to noninfringing products when that became necessary. The latter finding is not clearly erroneous, and although defendant was not actually selling the principal noninfringing substitute . . . during the relevant time period, it is not erroneous to conclude that the substitute was available. Cf. *1160 *Hughes Tool Co. v. G. W. Murphy Indus., Inc.*, 491 F.2d 923, 930-931 (5th Cir. 1973).

The district court also found the master correct in defining an acceptable noninfringing substitute as “a product which customers are willing to buy in place of the infringing product.”

In concluding that error occurred with respect to substitutes, we are mindful of the comments of this court in *Enterprise Mfg.*, 141 F.2d at 920, 61 USPQ at 205:

The appellee, by infringing use, has paid tribute to the utility of the device infringed. As was said by Judge Hickenlooper for this court, in *Seymour v. Ford Motor Company*, 6 Cir., 44 F.2d 306, 308 (7 USPQ 182, 184): “The patent is itself evidence of such utility, and the use of the patented device by the defendant has long been recognized as an admission of this fact, and as creating an estoppel upon the defendant to deny such utility. (Citing numerous cases.)”

There can be no doubt that, as found by the District Court, the substantial value of the Case patent was recognized by the infringer in its catalogues and other advertisements. The advantages proclaimed in these advertisements carry more forceful recognition of the value of the patent infringed than belated denial of its value rejects. Compare *Cugley v. Bundy Incubator Company*, 6 Cir., 93 F.2d 932, 934 (36 USPQ 524, 526).

Also pertinent are the comments of the court in *Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers*, 318 F.Supp. 1116 at 1123, 166 USPQ 235 at 241 (S.D.N.Y.1970), aff’d 446 F.2d 295, 170 USPQ 369 (2d Cir. 1971), cert. denied, 404 U.S. 870, 92 S.Ct. 105, 30 L.Ed.2d 114 (1971):

Noteworthy is the fact that, despite the allegedly fierce competition between the Weldtex (the patented goods) and other decorative plywoods, GP (plaintiff-infringer) deliberately decided to duplicate Weldtex notwithstanding the caveat of GP’s own counsel that an expensive infringement suit was inevitable. GP’s calculated infringement of Weldtex is an admission by conduct that it regarded Weldtex as occupying a uniquely favorable position in the market. (Emphasis added.)

¹⁸¹ In the present case, the master's finding that Panduit had competitors was not erroneous, but the implication drawn therefrom was. At the time the patent issued, there were four competitors, but they were recognized as making and selling not substitutes but infringing ducts. Competition between those selling infringing ducts was admittedly fierce. Infringer Stahlin, however, cannot expect to pay a lesser royalty, as compensation for its infringement, on the ground that it was not the only infringer. Cf. *Bros Inc. v. W. E. Grace Mfg. Co.*, 320 F.2d at 598, 138 USPQ at 358-59 (patent owner awarded lost profits).

¹⁹¹ Illustrative of the absence of acceptable substitutes is Stahlin's inability to avoid infringement, even if it had ever wanted to. Having begun manufacture of the duct in 1957, Stahlin continued after the patent issued in 1962, after Panduit instituted its infringement suit in 1964, and after the district court's injunction in 1969.⁸

***1161** At the time of the first injunction, virtually all of Stahlin's sales of electrical duct were of the infringing type. Stahlin's early-but-grudging recognition of the unique advantages of Panduit's patented duct was evidenced by an intra-company memo. Dated June 21, 1957, it was issued in the earliest stages of Stahlin's manufacture of the "Lok-Slot:"

It seems that some of our customers have preferred a full-slotted channel; one that permits slipping the wire in place rather than threading the end through an opening. It's advantages are questionable but we always try to give our customers even more than they want. Thus, we have developed the Lok-Slot construction.

Lok-Slot construction is evident in the name. Like any slot, Lok-Slot permits easy entry of wires. Unlike any other slot, Lok-Slot keeps the wires from readily popping up all over the place while connections are being made. The reason is Lok-Slot's slim throat construction which allows single wires in and out easily enough but "chokes up" on "mass exits."

Using Panel Chanel with Lok-Slot construction, wires don't have to be threaded through the channel openings. . . .

The Lok-Slot construction is not a cure-all. Frankly, it is not quite as easy to remove and put on the covers with this construction. In any event, there are some customers who prefer the full-slotted construction . . . and Lok-Slot is the best design approach yet to this form of channel.

In other words, don't push this construction . . . but if there is customer preference in this direction, you have

the best design to offer.

The district court opinion following the infringement trial recognized the same advantages over non-infringing ducts:

General Electric produced a steel grille which had perforated round roles through which wires were threaded (PX 63A). This device was patented in the 1930's (PX 67-6A and PX 62, at 50-53). Another product in use in the early 1950's was a U-shaped wiring duct (PX 2) which incorporated multiple openings in the side walls through which wires were threaded and then connected to the electrical components.

However, ducts with holes also had shortcomings. When these ducts were filled with wires, the wires were rather inaccessible and it was difficult to trace individual wires or to revise the wiring. For example, to remove any wire from the duct, it was necessary to disconnect the wire and thread it back through the hole. If the wire was not near the top of the duct, it was frequently necessary to remove a number of wires to gain access to the wire being traced or rerouted.

Mr. Walch, in 1953 as a senior advance engineer at General Electric, was given a broad assignment to improve wiring practices, including the improvement of wiring duct design. Four desirable functions or results were stressed by Mr. Walch in his work on the design of an improved wiring duct:

- (1) Easy insertion of wires in the duct;
- (2) Prevention of accidental removal of wires from the duct;
- ***1162** (3) Provision of maximum useful space for leading wires out of the duct; and
- (4) Facilitation of intentional removal of wires from the duct.

298 F.Supp. at 437-38, 162 USPQ at 116-17. That evaluation was affirmed on appeal by this court. 430 F.2d at 225, 166 USPQ at 525.

Proof of the absence of noninfringing substitutes: (I)nvolved some of the same evidence as that which was introduced in support of the validity of the patent. The patent owner who had proved a long-felt need for a particular invention has a lighter burden in establishing that his customers, as well as the infringer's customers, were in fact seeking to obtain the patented solution to such need or problem. The other side of the coin involves

a strong showing by the infringer that although the patent may have embodied some trifling improvement which was patentable to a narrow extent, such improvement did not create any preference for the patented product rather than a noninfringing substitute. . . .

3 R. White, s 9.03(2). The prior district and appellate court opinions leave no doubt that the patented product filled a waiting need and met with commercial success due to its merits. Stahl's own intra-company memo (PX 58), and its \$1,788,384 sales of infringing ducts during the period when allegedly acceptable noninfringing substitutes are now said to have been available, leave no doubt that the patented improvement created a substantial customer preference. A product lacking the advantages of that patented can hardly be termed a substitute "acceptable" to the customer who wants those advantages.⁹ The post-hoc circumstance that Stahl, when finally forced to obey the court's injunction, was successful in "switching" customers to a noninfringing product, does not destroy the advantage-recognition attributable to the patent over the prior 15 years. Those preferred advantages were recognized by Stahl itself, by other infringers, by customers, by the district court, and by this court. That Stahl's customers, no longer able to buy the patented product from Stahl, were willing to buy something else from Stahl, does not establish that there was on the market during the period of infringement a product which customers in general were, in the master's words, "willing to buy in place of the infringing product." Moreover, Stahl's "switching" occurred years after the date on which the determination of available substitutes must focus, i. e., the date of first infringement.¹⁰ Hence, the 21/2% royalty rate recommended by the master and adopted by the district court is clearly erroneous on its face, the master's recommendation having been based in large part on erroneous finding (1), that there were "acceptable" noninfringing substitutes during the relevant period.

The master's finding (2), that Panduit could not have maintained its high price differential (allegedly 30%) because of competition from substitutes, and his finding (3) that in March 1962 the parties were aware of the probability of a future price cut, must also fall. Evidence is lacking, as we have said, that acceptable substitutes were on the market on the focus-date of first infringement. For some five years after Stahl began manufacture of its "Lok-Slot" duct, purchasers of the patented product were willing to pay a substantial differential. It was not until January 1, 1963, some nine months after the hypothetically "willing" licensor and licensee are supposed to have negotiated a royalty, that Stahl made its price cut. We find no evidence in the

record to support the master's *1163 supposition that the parties would have had that future price cut in mind in March 1962. On the contrary, the hypothesis is that Stahl was a royalty-paying licensee on January 1, 1963, and nothing of record indicates an expectation that a licensee would cut its price or that any particular room existed to accommodate both a price cut and royalty payments.

^[11] Section 284 of the statute authorizes the use of experts in determining a reasonable royalty. However, the master's reliance on Scofield's testimony, and the district court's acceptance thereof, were clearly erroneous. That testimony was in substantial conflict with case law established in this circuit and elsewhere. Scofield testified that a reasonable royalty could be equated to the average value of all negotiated royalties, which in his experience was "between 1 and 5 per cent of the net selling price of the products,"¹⁰ and concluded that a reasonable royalty in this case would be 21/2%. He specifically testified that his experience was in the negotiation of licenses generally, and that he had no experience in the determination of a reasonable royalty after infringement under s 284. Scofield specifically assumed, for purposes of his testimony, that there existed in the present case acceptable noninfringing substitutes. He further ignored evidentiary facts considered relevant by this and other circuits. The analysis of this court in *Egry*, 23 F.2d at 443, is instructive:

In fixing a reasonable royalty, the primary inquiry, often complicated by secondary ones, is what the parties would have agreed upon, if both were reasonably trying to reach an agreement. This must be modified by the commercial situation, and when the result is to interfere with a patent monopoly, which the patentee was in position to and desired to keep, by retaining the entire market himself, his compensation for parting against his will with that opportunity must take due account of the loss to him of anticipated profits on the business which the licensees will thus get away from him. It is a step further, and we think a necessary one, to say that, when the patentee's business scheme involves a reasonable expectation of making future profits by the continuing sale to the purchaser of the patented machine, of supplies to be furnished by the patentee, which future business he will lose by licensing a competitor to make the machine, this expectant loss is an element to be considered in retroactively determining a reasonable royalty; and this is so even though the expectation of such future business was not the result of any system of contract obligations, but was only expectation reasonably based on established business methods and customs.

In *Georgia-Pacific*, supra, the appellate court affirmed the

analysis made by the district court at 318 F.Supp. at 1127, 116 USPQ at 243-44:

The amount of profits that USP (patent owner) was making and could (in February 1955 (when the infringement commenced)) reasonably expect to continue to make on its sales of Weldtex by licensing no one to sell Weldtex in the United States is of major relevance to the determination of the amount of royalty that USP would accept from GP and that GP would offer. USP was enjoying the profits of a readily salable product. USP was in a position to retain the entire market on striated fir plywood for itself. The result of GP's infringement was to interfere with that monopoly and, as planned, to put GP in direct competition with USP's Weldtex throughout the period of infringement. The hypothetical license would have been one whereby GP would have been permitted to market striated fir plywood through the United States (as GP infringingly did).

In the hypothetical negotiations, USP would have been reasonable in taking the position that it would not accept a royalty significantly less than the profit it was making by its policy of licensing no one *1164 to sell striated fir plywood in the United States.

Attorney Scofield may well have been "persuasive," but his testimony was based on general experience and invalid assumptions. There was clear error therefore in finding (4), that Scofield's testimony was "in line with the factual realities of this case."

^[12] Finding (5) was erroneously based on Stahlin's actual overall profit in all its products and on absence of proof of Stahlin's actual profit on its infringing sales. The infringer's profit element, in the post-judgment "reasonable royalty" equation, is not related to the infringer's actual profit; nor is it designed to insure the anomalous result of guaranteeing an actual profit to an infringer (or the profit it would have made if there had been no infringement). The licensee-profit element is but one of the measures applicable in March 1962, and should

be based on the customary profit allowed licensees in the industry at that time. Whether, as events unfurled thereafter, Stahlin would have made an actual profit, while paying the royalty determined as of March 1962, is irrelevant. If there had been no infringement, and if Stahlin had actually agreed to pay a royalty in March 1962, and if that royalty rate had then proven onerous, Stahlin might have renegotiated the royalty rate or canceled the license. But those options are no longer available to Stahlin, and their consideration in a formula for setting the royalty rate which would have been reasonable in March 1962 was error.

Conclusion

^[13] ^[14] Elements necessary to the determination of a reasonable royalty in the present case Panduit's actual profit margin in March 1962, and the customary profit allowed licensees in the electrical duct industry,¹¹ were not determined by the master in his report and cannot be discerned from the record.¹² They therefore must be determined on remand. On remand, the following factors must also be considered: (1) the lack of acceptable noninfringing substitutes, (2) Panduit's unvarying policy of not licensing the Walch patent, (3) the future business and attendant profit Panduit would expect to lose by licensing a competitor, and (4) that the infringed patent gave the entire marketable value to the infringed duct.¹³

For the reasons stated, we reverse the district court's determination of a reasonable royalty, and remand the case for further proceedings consistent herewith.

All Citations

575 F.2d 1152, 197 U.S.P.Q. 726

Footnotes

* Honorable Howard T. Markey sitting by designation.

¹ 35 U.S.C. s 284 reads in pertinent part:


Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.

² To "simplify" the appeal, Panduit limits the period for damages, disregarding Stahlin's sales made in contempt of the court's injunction.

- 3 In *Horvath v. McCord Radiator and Mfg. Co.*, supra, the omission of costs in an accounting, 100 F.2d at 333-34, 40 USPQ at 401, related to profits of the infringer.
- 4 Fed.R.Civ.P.
53(d)(3) Statement of Accounts. When matters of accounting are in issue before the master, he may prescribe the form in which the accounts shall be submitted and in any proper case may require or receive in evidence a statement by a certified public accountant who is called as a witness. Upon objection of a party to any of the items thus submitted or upon a showing that the form of statement is insufficient, the master may require a different form of statement to be furnished, or the accounts or specific items thereof to be proved by oral examination of the accounting parties or upon written interrogatories or in such other manner as he directs.
- 5 Patents must by law be given “the attributes of personal property.” 35 U.S.C. s 261. The right to exclude others is the essence of the human right called “property.” The right to exclude others from free use of an invention protected by a valid patent does not differ from the right to exclude others from free use of one’s automobile, crops, or other items of personal property. Every human right, including that in an invention, is subject to challenge under appropriate circumstances. That one human property right may be challenged by trespass, another by theft, and another by infringement, does not affect the fundamental indicium of all “property,” i. e., the right to exclude others.
- 6 We express no view respecting the applicability of rules governing willful infringement, treble damages, or attorneys’ fees, none of which have been made of issue here.
- 7 Because of “the important public interest in permitting full and free competition in the use of ideas which are in reality a part of the public domain.” *Lear, Inc. v. Adkins*, 395 U.S. 653 at 670, 89 S.Ct. 1902, 1911, 23 L.Ed.2d 610, 162 USPQ 1 at 8 (1969). All ideas are “part of the public domain.” “Ideas” are not patentable. Only particular physical embodiments, i. e., particular “uses,” of ideas are subject to patenting. Hence, one physical embodiment of an idea may be patentable, while a second embodiment of the same idea may not, because the first embodiment met the statutory requirements of novelty, usefulness and nonobviousness, and the second did not. Similarly, two physical embodiments of the same idea, if each meets the statutory requirements, may each be patented. Before a patent issues, throughout its life, and after it expires, the idea embodied, never having left the public domain, remains alive and well and may find itself reembodyed in other physical embodiments which, if they be new, useful and nonobvious, may themselves be patented. When a patent expires, as all must do in 17 years, the particular physical embodiment claimed therein enters the public domain.
- 8 Stahlin says its election to make and sell its “Tear Drop” duct after the initial injunction was to insure that Panduit “was not going to have a monopoly.” It is not uncommon for an infringer-contemnor to wrap itself in the mantle of public defender against “monopoly,” in reliance on an unthinking monopolophobia it mistakenly hopes to find in the courts. The loose application of the pejorative term “monopoly,” to the property right of exclusion represented by a patent, can be misleading. Unchecked it can also destroy the constitutional and statutory scheme reflected in the patent system. If the patent be valid, it takes nothing from the public, as does the “monopoly” against which our anti-trust laws are directed. On the contrary, it gives to the public, by definition, that which the public never before had. That a patent, like stocks, bonds and other property, may be misused in a plan violative of an anti-trust law does not render the property right in the patent a monopoly in the anti-social, anti-competitive sense, any more than it does the property right in stocks and bonds. Absent the incentive to disclose provided by the patent system, the public might never learn of many inventions, all of which reside first in the inventor’s mind and over which he could maintain a permanent “monopoly” by simply telling no one, or, if the invention permits, by keeping it a trade secret forever. As explained by the Supreme Court in *United States v. Dubilier Condenser Corp.*, 289 U.S. 178 at 186, 53 S.Ct. 554, 557, 77 L.Ed. 1114 (1933):
Though often so characterized, a patent is not, accurately speaking, a monopoly, for it is not created by the executive authority at the expense and to the prejudice of all the community except the grantee of the patent. *Seymour v. Osborne*, 11 Wall. 516, 533, 20 L.Ed. 33. The term ‘monopoly’ connotes the giving of an exclusive privilege for buying, selling, working or using a thing which the public freely enjoyed prior to the grant. Thus a monopoly takes something from the people. An inventor deprives the public of nothing which it enjoyed before his discovery, but gives something of value to the community by adding to the sum of human knowledge. (Footnote and citations omitted.)
- 9 The “acceptable substitute” element, though it is to be considered, must be viewed of limited influence where the infringer knowingly made and sold the patented product for years while ignoring the “substitute.” There are substitute products for virtually every patented product; the availability of railroads and box cameras should not of itself diminish royalties payable for infringement of the right to exclude others from making and selling the Wright airplane or the Polaroid camera.
- 10 The master’s determination was based on gross selling price.

- 11 A royalty, if any, resulting from settlement of an infringement suit between Panduit and a third party, should not be considered evidence of an “established” royalty and thus a measure of adequate damages here. License fees negotiated in the face of a threat of high litigation costs “may be strongly influenced by a desire to avoid full litigation. *Rude v. Westcott*, 130 U.S. 152, 164, 9 S.Ct. 463, 32 L.Ed. 888 (1888).” *Tights, Inc. v. Kayser-Roth Corp.*, 442 F.Supp. 159 at 166, 196 USPQ 750 at 755. (M.D.N.C.1977). See also *R. Stroup, Patentee’s Monetary Recovery from an Infringer*, 59 J.P.O.S. 362 at 384 (1977).
- 12 The master properly considered “that the sale of duct is accompanied by the sale of covers” in computing the royalty product base. See *Egry*, 23 F.2d at 443. The royalty base was not challenged here.
- 13 The patent expires in less than one year, on March 6, 1979, when the claimed invention will become the property of all.

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [Immunex Corporation v. Sanofi-Aventis U.S. LLC](#), Fed.Cir., October 13, 2020

415 F.3d 1303
United States Court of Appeals,
Federal Circuit.

Edward H. PHILLIPS,
Plaintiff–Appellant,

v.

AWH CORPORATION, Hopeman
Brothers, Inc., and Lofton Corporation,
Defendants–Cross Appellants.

Nos. 03–1269, 03–1286.

|
July 12, 2005.

Synopsis

Background: Owner of patent for vandalism-resistant wall panels sued former distributor for infringement. The United States District Court for the District of Colorado, [Marcia S. Krieger, J.](#), granted summary judgment for former distributor, and owner appealed. The Court of Appeals, [363 F.3d 1207](#), affirmed.

[Holding:] On rehearing en banc, the Court of Appeals, [Bryson](#), Circuit Judge, held that “baffles,” called for in asserted claim, were not limited to non-perpendicular, projectile-deflecting structures disclosed in preferred embodiment.

Affirmed in part, reversed in part, dismissed in part, and remanded.

[Lourie](#), Circuit Judge, concurred in part, dissenting in part, and filed opinion in which [Pauline Newman](#), Circuit Judge, joined.

[Mayer](#), Circuit Judge, dissented and filed opinion in which [Pauline Newman](#), Circuit Judge, joined.

West Headnotes (25)

[1] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General
291k910Assertion of Claims
291k915Functions, means, and results of invention
(Formerly 291k101(8))

Limitation in patent claim for vandalism-resistant wall, calling for “means disposed inside shell for increasing its load bearing capacity” comprising “internal steel baffles” extending inwardly from steel shell walls, recited sufficient structure to avoid means-plus-function treatment. [35 U.S.C.A. § 112](#), par. 6.

[28 Cases that cite this headnote](#)

[2] **Patents** → Claims as measure of patentee’s rights

291Patents
291VConstruction and Operation of Patents
291V(A)In General
291k1314Claims and Limitations; Language of Patent
291k1319Claims as measure of patentee’s rights
(Formerly 291k165(2))

It is bedrock principle of patent law that claims of patent define invention to which patentee is entitled the right to exclude.

[1558 Cases that cite this headnote](#)

[3] **Patents** → Plain, ordinary, or customary meaning in general **Patents** → State of the art

291Patents
291VConstruction and Operation of Patents
291V(A)In General
291k1314Claims and Limitations; Language of

Patent
291k1317 Plain, ordinary, or customary meaning in general
(Formerly 291k157(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1341 State of the art
(Formerly 291k161)

Words of patent claim are generally given their ordinary and customary meaning, i.e., meaning that term would have to person of ordinary skill in the art in question on effective filing date of patent application.

[2618 Cases that cite this headnote](#)

[4] **Patents** → Specifications and Drawings; Written Description
Patents → State of the art

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k167(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1341 State of the art
(Formerly 291k161)

Person of ordinary skill in the art, through whose eyes patent claim is construed, is deemed to read claim term not only in context of particular claim in which disputed term appears, but in context of entire patent, including specification.

[2102 Cases that cite this headnote](#)

[5] **Patents** → Construction of Particular Claims as Affected by Other Claims

291 Patents
291V Construction and Operation of Patents
291V(A) In General

291k1314 Claims and Limitations; Language of Patent
291k1325 Construction of Particular Claims as Affected by Other Claims
291k1325(1) In general
(Formerly 291k165(5))

Because claim terms are normally used consistently throughout patent, usage of term in one claim can often illuminate meaning of same term in other claims.

[430 Cases that cite this headnote](#)

[6] **Patents** → Dependent and independent claims

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1325 Construction of Particular Claims as Affected by Other Claims
291k1325(2) Dependent and independent claims
(Formerly 291k165(5))

Presence of dependent patent claim that adds particular limitation gives rise to presumption that limitation in question is not present in independent claim.

[417 Cases that cite this headnote](#)

[7] **Patents** → Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k101(4))

Patent claims must be read in view of specification, of which they are part.

[464 Cases that cite this headnote](#)

[8] Patents ➔ Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k167(1))

Patent specification is always highly relevant to claim construction analysis; it is single best guide to meaning of disputed term, and is usually dispositive.

[1512 Cases that cite this headnote](#)

[9] Patents ➔ Specifications and Drawings; Written Description
Patents ➔ Contemporaneous construction

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k167(1.1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1343 Contemporaneous construction
(Formerly 291k162)

When patent specification reveals special definition given to claim term by patentee that differs from meaning it would otherwise possess, inventor's lexicography governs.

[695 Cases that cite this headnote](#)

[10] Patents ➔ Specification disclaimer

291 Patents
291V Construction and Operation of Patents

291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1331 Specification disclaimer
(Formerly 291k167(1.1))

Where patent specification reveals intentional disclaimer, or disavowal, of claim scope by inventor, such revealed intention is dispositive.

[111 Cases that cite this headnote](#)

[11] Patents ➔ Rejection and Amendment of Claims; Prosecution History

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1335 Accompanying Documents and Proceedings in Patent and Trademark Office
291k1338 Rejection and Amendment of Claims; Prosecution History
291k1338(1) In general
(Formerly 291k168(1))

"Prosecution history" consists of complete record of proceedings before Patent and Trademark Office and includes prior art cited during examination of patent.

[238 Cases that cite this headnote](#)

[12] Patents ➔ Rejection and Amendment of Claims; Prosecution History

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1335 Accompanying Documents and Proceedings in Patent and Trademark Office
291k1338 Rejection and Amendment of Claims; Prosecution History
291k1338(1) In general
(Formerly 291k168(2.1))

Prosecution history can often inform meaning of patent claim language by demonstrating how inventor understood invention and whether inventor limited invention in course of prosecution, making claim scope narrower than

it would otherwise be.

[1167 Cases that cite this headnote](#)

[13] Patents → [Extrinsic Evidence](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1345 In general
(Formerly 291k159)

Although extrinsic evidence can shed useful light on relevant art, it is less significant than intrinsic record in determining legally operative meaning of patent claim language.

[738 Cases that cite this headnote](#)

[14] Patents → [Dictionaries, encyclopedias, treatises, and other reference works](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1346 Dictionaries, encyclopedias, treatises, and other reference works
(Formerly 291k159)

Dictionaries, though extrinsic evidence, are among tools that can assist patent-construing court in determining meaning of particular terminology to those of skill in the art of invention.

[90 Cases that cite this headnote](#)

[15] Patents → [Expert and inventor testimony](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1347 Expert and inventor testimony

(Formerly 291k159)

Extrinsic evidence in form of expert testimony can be useful to patent-construing court for variety of purposes, such as to provide background on technology at issue, to explain how invention works, to ensure that court's understanding of technical aspects of patent is consistent with that of person of skill in the art, or to establish that particular term in patent or prior art has particular meaning in pertinent field.

[360 Cases that cite this headnote](#)

[16] Patents → [Expert and inventor testimony](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1347 Expert and inventor testimony
(Formerly 291k159)

Conclusory, unsupported assertions by experts as to definition of patent claim term are not useful to construing court.

[107 Cases that cite this headnote](#)

[17] Patents → [Expert and inventor testimony](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1347 Expert and inventor testimony
(Formerly 291k159)

Court, when construing patent, should discount any expert testimony that is clearly at odds with claim construction mandated by claims themselves, written description, and prosecution history.

[181 Cases that cite this headnote](#)

[18] Patents → Extrinsic Evidence

291 Patents
 291V Construction and Operation of Patents
 291V(A) In General
 291k1344 Extrinsic Evidence
 291k1345 In general
 (Formerly 291k159)

Extrinsic evidence may be useful to construing court, but it is unlikely to result in reliable interpretation of patent claim scope unless considered in context of intrinsic evidence.

[338 Cases that cite this headnote](#)

[19] Patents → Extrinsic Evidence

291 Patents
 291V Construction and Operation of Patents
 291V(A) In General
 291k1344 Extrinsic Evidence
 291k1345 In general
 (Formerly 291k159)

It is permissible for patent-construing court, in its sound discretion, to admit and use extrinsic evidence; such evidence can help educate court regarding field of invention and can help court determine what person of ordinary skill in the art would understand claim terms to mean.

[1085 Cases that cite this headnote](#)

[20] Patents → Dictionaries, encyclopedias, treatises, and other reference works

291 Patents
 291V Construction and Operation of Patents
 291V(A) In General
 291k1344 Extrinsic Evidence
 291k1346 Dictionaries, encyclopedias, treatises, and other reference works
 (Formerly 291k159)

Although dictionaries or comparable sources are often useful to assist in understanding

commonly understood meaning of patent claim terms, construing court's focus remains on understanding how person of ordinary skill in the art would understand claim terms.

[1652 Cases that cite this headnote](#)

[21] Patents → Intrinsic evidence in general

291 Patents
 291V Construction and Operation of Patents
 291V(A) In General
 291k1312 Intrinsic evidence in general
 (Formerly 291k157(1))

There is no magic formula or catechism for conducting patent claim construction; court is not barred from considering any particular sources or required to analyze sources in any specific sequence, so long as those sources are not used to contradict claim meaning that is unambiguous in light of intrinsic evidence.

[126 Cases that cite this headnote](#)

[22] Patents → Building and paving materials and methods

291 Patents
 291V Construction and Operation of Patents
 291V(C) Particular Fields of Invention
 291k1382 Building and paving materials and methods
 (Formerly 291k101(3))

Internal steel “baffles,” called for in patent for vandalism-resistant wall panels, were not limited to non-perpendicular, projectile-deflecting structures disclosed in preferred embodiment; specification did not require that internal structures always be capable of performing that function.

[70 Cases that cite this headnote](#)

[23] Patents → Necessity of specifying results or

[advantages of invention](#)

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1330 Necessity of specifying results or advantages of invention
(Formerly 291k101(3))

Fact that patent asserts that invention achieves several objectives does not require that each claim be construed as limited to structures that are capable of achieving all those objectives.

[11 Cases that cite this headnote](#)

[24] **Patents** → Construction to give validity and effect to patent and claims

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1318 Construction to give validity and effect to patent and claims
(Formerly 291k157(2))

Application of patent construction maxim, that claims should be so construed, if possible, as to sustain their validity, is limited to cases in which court concludes, after applying all available tools of claim construction, that claim is still ambiguous.

[89 Cases that cite this headnote](#)

[25] **Patents** → In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility
(Formerly 291k328(2))

US Patent 4,677,798. Construed.

[1 Cases that cite this headnote](#)

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Before [MICHEL](#), Chief Judge, [NEWMAN](#), [MAYER](#), [LOURIE](#), [CLEVENGER](#), [RADER](#), [SCHALL](#), [BRYSON](#), [GAJARSA](#), [LINN](#), [DYK](#), and [PROST](#), Circuit Judges.

Opinion

Opinion for the court filed by Circuit Judge [BRYSON](#), in which Chief Judge [MICHEL](#) and Circuit Judges [CLEVENGER](#), [RADER](#), [SCHALL](#), [GAJARSA](#), [LINN](#), [DYK](#), and [PROST](#) join; and in which Circuit Judge [LOURIE](#) joins with respect to parts I, II, III, V, and VI; *1309 and in which Circuit Judge [PAULINE NEWMAN](#) joins with respect to parts I, II, III, and V. Opinion concurring in part and dissenting in part filed by Circuit Judge [LOURIE](#), in which Circuit Judge [PAULINE NEWMAN](#) joins. Dissenting opinion filed by Circuit Judge [MAYER](#), in which Circuit Judge [PAULINE NEWMAN](#) joins.

[BRYSON](#), Circuit Judge.

Edward H. Phillips invented modular, steel-shell panels that can be welded together to form vandalism-resistant walls. The panels are especially useful in building prisons because they are load-bearing and impact-resistant, while also insulating against fire and noise. Mr. Phillips obtained a patent on the invention, [U.S. Patent No.](#)

4,677,798 (“the ‘798 patent”), and he subsequently entered into an arrangement with AWH Corporation, Hopeman Brothers, Inc., and Lofton Corporation (collectively “AWH”) to market and sell the panels. That arrangement ended in 1990. In 1991, however, Mr. Phillips received a sales brochure from AWH that suggested to him that AWH was continuing to use his trade secrets and patented technology without his consent. In a series of letters in 1991 and 1992, Mr. Phillips accused AWH of patent infringement and trade secret misappropriation. Correspondence between the parties regarding the matter ceased after that time.

In February 1997, Mr. Phillips brought suit in the United States District Court for the District of Colorado charging AWH with misappropriation of trade secrets and infringement of claims 1, 21, 22, 24, 25, and 26 of the ‘798 patent. *Phillips v. AWH Corp.*, No. 97–N–212 (D.Colo.). The district court dismissed the trade secret misappropriation claim as barred by Colorado’s three-year statute of limitations.

With regard to the patent infringement issue, the district court focused on the language of claim 1, which recites “further means disposed inside the shell for increasing its load bearing capacity comprising internal steel baffles extending inwardly from the steel shell walls.” The court interpreted that language as “a means ... for performing a specified function,” subject to 35 U.S.C. § 112, paragraph 6, which provides that such a claim “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” Looking to the specification of the ‘798 patent, the court noted that “every textual reference in the Specification and its diagrams show baffle deployment at an angle other than 90 to the wall faces” and that “placement of the baffles at such angles creates an intermediate interlocking, but not solid, internal barrier.” The district court therefore ruled that, for purposes of the ‘798 patent, a baffle must “extend inward from the steel shell walls at an oblique or acute angle to the wall face” and must form part of an interlocking barrier in the interior of the wall module. Because Mr. Phillips could not prove infringement under that claim construction, the district court granted summary judgment of noninfringement.

Mr. Phillips appealed with respect to both the trade secret and patent infringement claims. A panel of this court affirmed on both issues. *Phillips v. AWH Corp.*, 363 F.3d 1207 (Fed.Cir.2004). As to the trade secret claim, the panel unanimously upheld the district court’s ruling that the claim was barred by the applicable statute of limitations. *Id.* at 1215. As to the patent infringement claims, the panel was divided. The majority sustained the

district court’s summary judgment of noninfringement, although on different grounds. The dissenting judge would have reversed the summary judgment of noninfringement.

*1310 The panel first determined that because the asserted claims of the ‘798 patent contain a sufficient recitation of structure, the district court erred by construing the term “baffles” to invoke the “means-plus-function” claim format authorized by section 112, paragraph 6. *Id.* at 1212. Nonetheless, the panel concluded that the patent uses the term “baffles” in a restrictive manner. Based on the patent’s written description, the panel held that the claim term “baffles” excludes structures that extend at a 90 degree angle from the walls. The panel noted that the specification repeatedly refers to the ability of the claimed baffles to deflect projectiles and that it describes the baffles as being “disposed at such angles that bullets which might penetrate the outer steel panels are deflected.” ‘798 patent, col. 2, ll. 13–15; see also *id.* at col. 5, ll. 17–19 (baffles are “disposed at angles which tend to deflect the bullets”). In addition, the panel observed that nowhere in the patent is there any disclosure of a baffle projecting from the wall at a right angle and that baffles oriented at 90 degrees to the wall were found in the prior art. Based on “the specification’s explicit descriptions,” the panel concluded “that the patentee regarded his invention as panels providing impact or projectile resistance and that the baffles must be oriented at angles other than 90.” *Phillips*, 363 F.3d at 1213. The panel added that the patent specification “is intended to support and inform the claims, and here it makes it unmistakably clear that the invention involves baffles angled at other than 90.” *Id.* at 1214. The panel therefore upheld the district court’s summary judgment of noninfringement.

The dissenting judge argued that the panel had improperly limited the claims to the particular embodiment of the invention disclosed in the specification, rather than adopting the “plain meaning” of the term “baffles.” The dissenting judge noted that the parties had stipulated that “baffles” are a “means for obstructing, impeding, or checking the flow of something,” and that the panel majority had agreed that the ordinary meaning of baffles is “something for deflecting, checking, or otherwise regulating flow.” *Phillips*, 363 F.3d at 1216–17. In the dissent’s view, nothing in the specification redefined the term “baffles” or constituted a disclaimer specifically limiting the term to less than the full scope of its ordinary meaning. Instead, the dissenting judge contended, the specification “merely identifies impact resistance as one of several objectives of the invention.” *Id.* at 1217. In sum, the dissent concluded that “there is no reason to

supplement the plain meaning of the claim language with a limitation from the preferred embodiment.” *Id.* at 1218. Consequently, the dissenting judge argued that the court should have adopted the general purpose dictionary definition of the term baffle, i.e., “something for deflecting, checking, or otherwise regulating flow,” *id.*, and therefore should have reversed the summary judgment of noninfringement.

This court agreed to rehear the appeal en banc and vacated the judgment of the panel. *Phillips v. AWH Corp.*, 376 F.3d 1382 (Fed.Cir.2004). We now affirm the portion of the district court’s judgment addressed to the trade secret misappropriation claims. However, we reverse the portion of the court’s judgment addressed to the issue of infringement.

I

Claim 1 of the ’798 patent is representative of the asserted claims with respect to the use of the term “baffles.” It recites:

Building modules adapted to fit together for construction of fire, sound and impact resistant security barriers and rooms for use in securing records and *1311 persons, comprising in combination, an outer shell ..., sealant means ... and further means disposed inside the shell for increasing its load bearing capacity comprising internal steel baffles extending inwardly from the steel shell walls.

^[1] As a preliminary matter, we agree with the panel that the term “baffles” is not means-plus-function language that invokes 35 U.S.C. § 112, paragraph 6. To be sure, the claim refers to “means disposed inside the shell for increasing its load bearing capacity,” a formulation that would ordinarily be regarded as invoking the means-plus-function claim format. However, the claim specifically identifies “internal steel baffles” as structure that performs the recited function of increasing the shell’s load-bearing capacity. In contrast to the “load bearing means” limitation, the reference to “baffles” does not use the word “means,” and we have held that the absence of that term creates a rebuttable presumption that section 112, paragraph 6, does not apply. *See Personalized Media Communications, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703–04 (Fed.Cir.1998).

Means-plus-function claiming applies only to purely

functional limitations that do not provide the structure that performs the recited function. *See Watts v. XL Sys., Inc.*, 232 F.3d 877, 880–81 (Fed.Cir.2000). While the baffles in the ’798 patent are clearly intended to perform several functions, the term “baffles” is nonetheless structural; it is not a purely functional placeholder in which structure is filled in by the specification. *See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1121 (Fed.Cir.2001) (reasoning that nothing in the specification or prosecution history suggests that the patentee used the term “compressed spring” to denote any structure that is capable of performing the specified function); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed.Cir.1996) (construing the term “detent mechanism” to refer to particular structure, even though the term has functional connotations). The claims and the specification unmistakably establish that the “steel baffles” refer to particular physical apparatus. The claim characterizes the baffles as “extend [ing] inwardly” from the steel shell walls, which plainly implies that the baffles are structures. The specification likewise makes clear that the term “steel baffles” refers to particular internal wall structures and is not simply a general description of any structure that will perform a particular function. *See, e.g., ’798 patent*, col. 4, ll. 25–26 (“the load bearing baffles 16 are optionally used with longer panels”); *id.*, col. 4, ll. 49–50 (opposing panels are “compressed between the flange 35 and the baffle 26”). Because the term “baffles” is not subject to section 112, paragraph 6, we agree with the panel that the district court erred by limiting the term to corresponding structures disclosed in the specification and their equivalents. Accordingly, we must determine the correct construction of the structural term “baffles,” as used in the ’798 patent.

II

The first paragraph of section 112 of the Patent Act, 35 U.S.C. § 112, states that the specification

shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains ... to make and use the same

The second paragraph of section 112 provides that the specification

shall conclude with one or more claims particularly

pointing out and distinctly *1312 claiming the subject matter which the applicant regards as his invention.

Those two paragraphs of section 112 frame the issue of claim interpretation for us. The second paragraph requires us to look to the language of the claims to determine what “the applicant regards as his invention.” On the other hand, the first paragraph requires that the specification describe the invention set forth in the claims. The principal question that this case presents to us is the extent to which we should resort to and rely on a patent’s specification in seeking to ascertain the proper scope of its claims.

This is hardly a new question. The role of the specification in claim construction has been an issue in patent law decisions in this country for nearly two centuries. We addressed the relationship between the specification and the claims at some length in our en banc opinion in *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979–81 (Fed.Cir.1995) (en banc), *aff’d*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). We again summarized the applicable principles in *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576 (Fed.Cir.1996), and more recently in *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111 (Fed.Cir.2004). What we said in those cases bears restating, for the basic principles of claim construction outlined there are still applicable, and we reaffirm them today. We have also previously considered the use of dictionaries in claim construction. What we have said in that regard requires clarification.

A

¹²¹ It is a “bedrock principle” of patent law that “the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Innova*, 381 F.3d at 1115; *see also Vitronics*, 90 F.3d at 1582 (“we look to the words of the claims themselves ... to define the scope of the patented invention”); *Markman*, 52 F.3d at 980 (“The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims.”). That principle has been recognized since at least 1836, when Congress first required that the specification include a portion in which the inventor “shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.” Act of July 4, 1836, ch. 357, § 6, 5 Stat. 117, 119. In the following years, the Supreme

Court made clear that the claims are “of primary importance, in the effort to ascertain precisely what it is that is patented.” *Merrill v. Yeomans*, 94 U.S. 568, 570, 24 L.Ed. 235 (1876). Because the patentee is required to “define precisely what his invention is,” the Court explained, it is “unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.” *White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886); *see also Cont’l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) (“the claims measure the invention”); *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895) (“if we once begin to include elements not mentioned in the claim, in order to limit such claim ..., we should never know where to stop”); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) (“the claims made in the patent are the sole measure of the grant”).

¹³¹ We have frequently stated that the words of a claim “are generally given their ordinary and customary meaning.” *Vitronics*, 90 F.3d at 1582; *see also Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1299 (Fed.Cir.1999); *Renishaw PLC *1313 v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed.Cir.1998). We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application. *See Innova*, 381 F.3d at 1116 (“A court construing a patent claim seeks to accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention.”); *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed.Cir.2004) (“customary meaning” refers to the “customary meaning in [the] art field”); *Ferguson Beauregard/Logic Controls v. Mega Sys., LLC*, 350 F.3d 1327, 1338 (Fed.Cir.2003) (claim terms “are examined through the viewing glass of a person skilled in the art”); *see also PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1363 (Fed.Cir.2005) (meaning of claim “must be interpreted as of [the] effective filing date” of the patent application); *Schering Corp. v. Amgen Inc.*, 222 F.3d 1347, 1353 (Fed.Cir.2000) (same).

The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation. *See Innova*, 381 F.3d at 1116. That starting point is based on the well-settled understanding that inventors are typically persons skilled in the field of the invention and that patents are addressed to and intended to be read by others

of skill in the pertinent art. See *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1119 (Fed.Cir.2002) (patent documents are meant to be “a concise statement for persons in the field”); *In re Nelson*, 47 C.C.P.A. 1031, 280 F.2d 172, 181 (1960) (“The descriptions in patents are not addressed to the public generally, to lawyers or to judges, but, as section 112 says, to those skilled in the art to which the invention pertains or with which it is most nearly connected.”).

¹⁴¹ Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. This court explained that point well in *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed.Cir.1998):

It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such person is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field. The inventor’s words that are used to describe the invention—the inventor’s lexicography—must be understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology. Thus the court starts the decisionmaking process by reviewing the same resources as would that person, viz., the patent specification and the prosecution history.

See also *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed.Cir.2005) (“We cannot look at the ordinary meaning of the term ... in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”); *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1310 (Fed.Cir.2005) (intrinsic record “usually provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention”); *1314 *Unitherm Food Sys., Inc. v. Swift-Eckrich, Inc.*, 375 F.3d 1341, 1351 (Fed.Cir.2004) (proper definition is the “definition that one of ordinary skill in the art could ascertain from the intrinsic evidence in the record”).

B

In some cases, the ordinary meaning of claim language as

understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. See *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed.Cir.2001) (holding that the claims did “not require elaborate interpretation”). In such circumstances, general purpose dictionaries may be helpful. In many cases that give rise to litigation, however, determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art. Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” *Innova*, 381 F.3d at 1116. Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.*; see also *Gemstar-TV Guide Int’l, Inc. v. Int’l Trade Comm’n*, 383 F.3d 1352, 1364 (Fed.Cir.2004); *Vitronics*, 90 F.3d at 1582–83; *Markman*, 52 F.3d at 979–80.

1

Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms. See *Vitronics*, 90 F.3d at 1582; see also *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed.Cir.2003) (“the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms”).

To begin with, the context in which a term is used in the asserted claim can be highly instructive. To take a simple example, the claim in this case refers to “steel baffles,” which strongly implies that the term “baffles” does not inherently mean objects made of steel. This court’s cases provide numerous similar examples in which the use of a term within the claim provides a firm basis for construing the term. See, e.g., *Mars, Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1374 (Fed.Cir.2004) (claim term “ingredients” construed in light of the use of the term “mixture” in the same claim phrase); *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1356 (Fed.Cir.1999) (claim term “discharge rate” construed in light of the use of the same term in another limitation of the same claim).

¹⁵¹ ¹⁶¹ Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. *Vitronics*, 90 F.3d at 1582. Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. See *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed.Cir.2001); *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1159 (Fed.Cir.1997). Differences among claims can also be a useful guide in understanding the meaning of particular claim terms. See *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed.Cir.1991). For example, *1315 the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. See *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed.Cir.2004).

2

¹⁷¹ ¹⁸¹ The claims, of course, do not stand alone. Rather, they are part of “a fully integrated written instrument,” *Markman*, 52 F.3d at 978, consisting principally of a specification that concludes with the claims. For that reason, claims “must be read in view of the specification, of which they are a part.” *Id.* at 979. As we stated in *Vitronics*, the specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” 90 F.3d at 1582.

This court and its predecessors have long emphasized the importance of the specification in claim construction. In *Autogiro Co. of America v. United States*, 181 Ct.Cl. 55, 384 F.2d 391, 397–98 (1967), the Court of Claims characterized the specification as “a concordance for the claims,” based on the statutory requirement that the specification “describe the manner and process of making and using” the patented invention. The Court of Customs and Patent Appeals made a similar point. See *In re Fout*, 675 F.2d 297, 300 (CCPA 1982) (“Claims must always be read in light of the specification. Here, the specification makes plain what the appellants did and did not invent”).

Shortly after the creation of this court, Judge Rich wrote that “[t]he descriptive part of the specification aids in ascertaining the scope and meaning of the claims inasmuch as the words of the claims must be based on the description. The specification is, thus, the primary basis for construing the claims.” *Standard Oil Co. v. Am.*

Cyanamid Co., 774 F.2d 448, 452 (Fed.Cir.1985). On numerous occasions since then, we have reaffirmed that point, stating that “[t]he best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history.” *Multiform Desiccants*, 133 F.3d at 1478; *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed.Cir.2004) (“In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.”); see also, e.g., *Kinik Co. v. Int’l Trade Comm’n*, 362 F.3d 1359, 1365 (Fed.Cir.2004) (“The words of patent claims have the meaning and scope with which they are used in the specification and the prosecution history.”); *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1315 (Fed.Cir.2003) (“[T]he best indicator of claim meaning is its usage in context as understood by one of skill in the art at the time of invention.”).

That principle has a long pedigree in Supreme Court decisions as well. See *Hogg v. Emerson*, 47 U.S. (6 How.) 437, 482, 12 L.Ed. 505 (1848) (the specification is a “component part of the patent” and “is as much to be considered with the [letters patent] in construing them, as any paper referred to in a deed or other contract”); *Bates v. Coe*, 98 U.S. 31, 38, 25 L.Ed. 68 (1878) (“in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims”); *White v. Dunbar*, 119 U.S. 47, 51, 7 S.Ct. 72, 30 L.Ed. 303 (1886) (specification is appropriately resorted to “for the purpose of better understanding the meaning of the claim”); *1316 *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217, 61 S.Ct. 235, 85 L.Ed. 132 (1940) (“The claims of a patent are always to be read or interpreted in light of its specifications.”); *United States v. Adams*, 383 U.S. 39, 49, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966) (“[I]t is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.”).

The importance of the specification in claim construction derives from its statutory role. The close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in “full, clear, concise, and exact terms.” 35 U.S.C. § 112, para. 1; see *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed.Cir.2001) (“The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.”); see also *Markman v. Westview Instruments, Inc.*, 517 U.S.

370, 389, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) (“[A claim] term can be defined only in a way that comports with the instrument as a whole.”). In light of the statutory directive that the inventor provide a “full” and “exact” description of the claimed invention, the specification necessarily informs the proper construction of the claims. See *Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1371 (Fed.Cir.2003) (“A fundamental rule of claim construction is that terms in a patent document are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification, of which they are a part.”) (citations omitted). In *Renishaw*, this court summarized that point succinctly:

Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.

158 F.3d at 1250 (citations omitted).

^{9]} ^[10] Consistent with that general principle, our cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs. See *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed.Cir.2002). In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor’s intention, as expressed in the specification, is regarded as dispositive. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343–44 (Fed.Cir.2001).

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Cir.*, 367 F.3d 1359, 1364 (Fed.Cir.2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description *1317 so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 C.F.R. §

1.75(d)(1). It is therefore entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims.

3

^[11] ^[12] In addition to consulting the specification, we have held that a court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman*, 52 F.3d at 980; see also *Graham v. John Deere Co.*, 383 U.S. 1, 33, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966) (“[A]n invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office.”). The prosecution history, which we have designated as part of the “intrinsic evidence,” consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. *Autogiro*, 384 F.2d at 399. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent. See *Lemelson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206 (Fed.Cir.1992). Furthermore, like the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent. Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes. See *Inverness Med. Switz. GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1380–82 (Fed.Cir.2002) (the ambiguity of the prosecution history made it less relevant to claim construction); *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1580 (Fed.Cir.1996) (the ambiguity of the prosecution history made it “unhelpful as an interpretive resource” for claim construction). Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. *Vitronics*, 90 F.3d at 1582–83; see also *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed.Cir.2005) (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’”), quoting *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1580 (Fed.Cir.1988); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed.Cir.1995).

C

[13] Although we have emphasized the importance of intrinsic evidence in claim construction, we have also authorized district courts to rely on extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980, citing *Seymour v. Osborne*, 78 U.S. (11 Wall.) 516, 546, 20 L.Ed. 33 (1870); see also *Vitronics*, 90 F.3d at 1583. However, while extrinsic evidence “can shed useful light on the relevant art,” we have explained that it is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed.Cir.2004), quoting *Vanderlande Indus. Nederland BV v. Int’l Trade Comm’n*, 366 F.3d 1311, 1318 (Fed.Cir.2004); see also *Astrazeneca AB v. Mutual Pharm. Co.*, 384 F.3d 1333, 1337 (Fed.Cir.2004).

*1318 [14] Within the class of extrinsic evidence, the court has observed that dictionaries and treatises can be useful in claim construction. See *Renishaw*, 158 F.3d at 1250; *Rexnord*, 274 F.3d at 1344. We have especially noted the help that technical dictionaries may provide to a court “to better understand the underlying technology” and the way in which one of skill in the art might use the claim terms. *Vitronics*, 90 F.3d at 1584 n. 6. Because dictionaries, and especially technical dictionaries, endeavor to collect the accepted meanings of terms used in various fields of science and technology, those resources have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention. See *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed.Cir.2002). Such evidence, we have held, may be considered if the court deems it helpful in determining “the true meaning of language used in the patent claims.” *Markman*, 52 F.3d at 980.

[15] [16] [17] We have also held that extrinsic evidence in the form of expert testimony can be useful to a court for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field. See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308–09 (Fed.Cir.1999); *Key Pharms. v. Hercon Labs. Corp.*, 161

F.3d 709, 716 (Fed.Cir.1998). However, conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court. Similarly, a court should discount any expert testimony “that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.” *Key Pharms.*, 161 F.3d at 716.

We have viewed extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms, for several reasons. First, extrinsic evidence by definition is not part of the patent and does not have the specification’s virtue of being created at the time of patent prosecution for the purpose of explaining the patent’s scope and meaning. Second, while claims are construed as they would be understood by a hypothetical person of skill in the art, extrinsic publications may not be written by or for skilled artisans and therefore may not reflect the understanding of a skilled artisan in the field of the patent. Third, extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence. The effect of that bias can be exacerbated if the expert is not one of skill in the relevant art or if the expert’s opinion is offered in a form that is not subject to cross-examination. See *Senmed, Inc. v. Richard-Allan Med. Indus., Inc.*, 888 F.2d 815, 819 n. 8 (Fed.Cir.1989). Fourth, there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question. In the course of litigation, each party will naturally choose the pieces of extrinsic evidence most favorable to its cause, leaving the court with the considerable task of filtering the useful extrinsic evidence from the fluff. See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 595, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993) (“Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it.”). Finally, *1319 undue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the “indisputable public records consisting of the claims, the specification and the prosecution history,” thereby undermining the public notice function of patents. *Southwall Techs.*, 54 F.3d at 1578.

[18] [19] In sum, extrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence. Nonetheless, because extrinsic evidence can help educate the court regarding the field of the invention and can help the court determine what a

person of ordinary skill in the art would understand claim terms to mean, it is permissible for the district court in its sound discretion to admit and use such evidence. In exercising that discretion, and in weighing all the evidence bearing on claim construction, the court should keep in mind the flaws inherent in each type of evidence and assess that evidence accordingly.

III

Although the principles outlined above have been articulated on numerous occasions, some of this court's cases have suggested a somewhat different approach to claim construction, in which the court has given greater emphasis to dictionary definitions of claim terms and has assigned a less prominent role to the specification and the prosecution history. The leading case in this line is *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed.Cir.2002).

A

In *Texas Digital*, the court noted that “dictionaries, encyclopedias and treatises are particularly useful resources to assist the court in determining the ordinary and customary meanings of claim terms.” 308 F.3d at 1202. Those texts, the court explained, are “objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art,” and they “deserve no less fealty in the context of claim construction” than in any other area of law. *Id.* at 1203. The court added that because words often have multiple dictionary meanings, the intrinsic record must be consulted to determine which of the different possible dictionary meanings is most consistent with the use of the term in question by the inventor. If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the court stated, “the claim terms may be construed to encompass all such consistent meanings.” *Id.*

The *Texas Digital* court further explained that the patent's specification and prosecution history must be consulted to determine if the patentee has used “the words [of the claim] in a manner clearly inconsistent with the ordinary

meaning reflected, for example, in a dictionary definition.” 308 F.3d at 1204. The court identified two circumstances in which such an inconsistency may be found. First, the court stated, “the presumption in favor of a dictionary definition will be overcome where the patentee, acting as his or her own lexicographer, has clearly set forth an explicit definition of the term different from its ordinary meaning.” *Id.* Second, “the presumption also will be rebutted if the inventor has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” *Id.*

The *Texas Digital* court explained that it advanced the methodology set forth in *1320 that opinion in an effort to combat what this court has termed “one of the cardinal sins of patent law—reading a limitation from the written description into the claims,” *SciMed Life Sys.*, 242 F.3d at 1340. The court concluded that it is improper to consult “the written description and prosecution history as a threshold step in the claim construction process, before any effort is made to discern the ordinary and customary meanings attributed to the words themselves.” *Texas Digital*, 308 F.3d at 1204. To do so, the court reasoned, “invites a violation of our precedent counseling against importing limitations into the claims.” *Id.* Summarizing its analysis, the *Texas Digital* court stated:

By examining relevant dictionaries, encyclopedias, and treatises to ascertain possible meanings that would have been attributed to the words of the claims by those skilled in the art, and by further utilizing the intrinsic record to select from those possible meanings the one or ones most consistent with the use of the words by the inventor, the full breadth of the limitations intended by the inventor will be more accurately determined and the improper importation of unintended limitations from the written description into the claims will be more easily avoided.
Id. at 1205.

B

Although the concern expressed by the court in *Texas Digital* was valid, the methodology it adopted placed too much reliance on extrinsic sources such as dictionaries, treatises, and encyclopedias and too little on intrinsic sources, in particular the specification and prosecution history. While the court noted that the specification must be consulted in every case, it suggested a methodology for

claim interpretation in which the specification should be consulted only after a determination is made, whether based on a dictionary, treatise, or other source, as to the ordinary meaning or meanings of the claim term in dispute. Even then, recourse to the specification is limited to determining whether the specification excludes one of the meanings derived from the dictionary, whether the presumption in favor of the dictionary definition of the claim term has been overcome by “an explicit definition of the term different from its ordinary meaning,” or whether the inventor “has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” 308 F.3d at 1204. In effect, the *Texas Digital* approach limits the role of the specification in claim construction to serving as a check on the dictionary meaning of a claim term if the specification requires the court to conclude that fewer than all the dictionary definitions apply, or if the specification contains a sufficiently specific alternative definition or disavowal. See, e.g., *Texas Digital*, 308 F.3d at 1202 (“unless compelled otherwise, a court will give a claim term the full range of its ordinary meaning”); *Nystrom v. TREX Co.*, 374 F.3d 1105, 1111–13 (Fed.Cir.2004) (ascertaining the “full range” of the ordinary meaning of the term “board” through a collection of dictionary definitions, and stating that those candidate definitions should be removed from consideration only if they were “disclaimed” in the written description or prosecution history); *Inverness Med. Switz.*, 309 F.3d at 1379 (claim should be construed to encompass multiple dictionary meanings unless “the specification or prosecution history clearly demonstrates that only one of the multiple meanings was intended”). That approach, in our view, improperly restricts the role of the specification in claim construction.

Assigning such a limited role to the specification, and in particular requiring *1321 that any definition of claim language in the specification be express, is inconsistent with our rulings that the specification is “the single best guide to the meaning of a disputed term,” and that the specification “acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.” *Vitronics*, 90 F.3d at 1582; *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed.Cir.2004) (“Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.”) (citations omitted); *Novartis Pharms. Corp. v. Abbott Labs.*, 375 F.3d 1328, 1334–35 (Fed.Cir.2004) (same); *Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed.Cir.2001) (“[A] claim term may be clearly redefined

without an explicit statement of redefinition.”).

The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent. Properly viewed, the “ordinary meaning” of a claim term is its meaning to the ordinary artisan after reading the entire patent. Yet heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification. The patent system is based on the proposition that claims cover only the invented subject matter. As the Supreme Court has stated, “[i]t seems to us that nothing can be more just and fair, both to the patentee and the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.” *Merrill v. Yeomans*, 94 U.S. at 573–74. The use of a dictionary definition can conflict with that directive because the patent applicant did not create the dictionary to describe the invention. Thus, there may be a disconnect between the patentee’s responsibility to describe and claim his invention, and the dictionary editors’ objective of aggregating all possible definitions for particular words.

Although the *Texas Digital* line of cases permit the dictionary definition to be narrowed in some circumstances even when there is not an explicit disclaimer or redefinition in the specification, too often that line of cases has been improperly relied upon to condone the adoption of a dictionary definition entirely divorced from the context of the written description. The problem is that if the district court starts with the broad dictionary definition in every case and fails to fully appreciate how the specification implicitly limits that definition, the error will systematically cause the construction of the claim to be unduly expansive. The risk of systematic overbreadth is greatly reduced if the court instead focuses at the outset on how the patentee used the claim term in the claims, specification, and prosecution history, rather than starting with a broad definition and whittling it down.

Dictionaries, by their nature, provide an expansive array of definitions. General dictionaries, in particular, strive to collect all uses of particular words, from the common to the obscure. By design, general dictionaries collect the definitions of a term as used not only in a particular art field, but in many different settings. In such circumstances, it is inevitable that the multiple dictionary definitions for a term will extend beyond the “construction of the patent [that] is confirmed by the

avowed understanding of the patentee, expressed by him, or on his behalf, when his application *1322 for the original patent was pending.” *Goodyear Dental Vulcanite Co. v. Davis*, 102 U.S. 222, 227, 26 L.Ed. 149 (1880). Thus, the use of the dictionary may extend patent protection beyond what should properly be afforded by the inventor’s patent. See *Smith v. Snow*, 294 U.S. 1, 14, 55 S.Ct. 279, 79 L.Ed. 721 (1935) (“if the claim were fairly susceptible of two constructions, that should be adopted which will secure to the patentee *his actual invention*”) (emphasis added). For that reason, we have stated that “a general-usage dictionary cannot overcome art-specific evidence of the meaning” of a claim term. *Vanderlande Indus. Nederland*, 366 F.3d at 1321; see also *Renishaw*, 158 F.3d at 1250, quoting *Liebscher v. Boothroyd*, 46 C.C.P.A. 701, 258 F.2d 948, 951 (CCPA 1958) (“Indiscriminate reliance on definitions found in dictionaries can often produce absurd results.... One need not arbitrarily pick and choose from the various accepted definitions of a word to decide which meaning was intended as the word is used in a given claim. The subject matter, the context, etc., will more often than not lead to the correct conclusion.”).

Even technical dictionaries or treatises, under certain circumstances, may suffer from some of these deficiencies. There is no guarantee that a term is used in the same way in a treatise as it would be by the patentee. In fact, discrepancies between the patent and treatises are apt to be common because the patent by its nature describes something novel. See *Autogiro*, 384 F.2d at 397 (“Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot.”).

Moreover, different dictionaries may contain somewhat different sets of definitions for the same words. A claim should not rise or fall based upon the preferences of a particular dictionary editor, or the court’s independent decision, uninformed by the specification, to rely on one dictionary rather than another. Finally, the authors of dictionaries or treatises may simplify ideas to communicate them most effectively to the public and may thus choose a meaning that is not pertinent to the understanding of particular claim language. See generally Ellen P. Aprill, *The Law of the Word: Dictionary Shopping in the Supreme Court*, 30 *Ariz. St. L.J.* 275, 293–314 (1998). The resulting definitions therefore do not necessarily reflect the inventor’s goal of distinctly setting forth his invention as a person of ordinary skill in that particular art would understand it.

¹²⁰¹ As we have noted above, however, we do not intend to preclude the appropriate use of dictionaries. Dictionaries

or comparable sources are often useful to assist in understanding the commonly understood meaning of words and have been used both by our court and the Supreme Court in claim interpretation. See *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 134, 62 S.Ct. 513, 86 L.Ed. 736 (1942) (relying on dictionaries to construe the claim term “embedded”); *Weber Elec. Co. v. E.H. Freeman Elec. Co.*, 256 U.S. 668, 678, 41 S.Ct. 600, 65 L.Ed. 1162 (1921) (approving circuit court’s use of dictionary definitions to define claim terms); *Renishaw*, 158 F.3d at 1247–53 (approving the use of dictionaries with proper respect for the role of intrinsic evidence). A dictionary definition has the value of being an unbiased source “accessible to the public in advance of litigation.” *Vitronics*, 90 F.3d at 1585. As we said in *Vitronics*, judges are free to consult dictionaries and technical treatises

at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict *1323 any definition found in or ascertained by a reading of the patent documents.

Id. at 1584 n. 6.

We also acknowledge that the purpose underlying the *Texas Digital* line of cases—to avoid the danger of reading limitations from the specification into the claim—is sound. Moreover, we recognize that the distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice. See *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186–87 (Fed.Cir.1998) (“there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification”). However, the line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court’s focus remains on understanding how a person of ordinary skill in the art would understand the claim terms. For instance, although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. See, e.g., *Nazomi Communications, Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1369 (Fed.Cir.2005) (claims may embrace “different subject matter than is illustrated in the specific embodiments in the specification”); *Liebel-Flarsheim*, 358 F.3d at 906–08; *Telexflex*, 299 F.3d at 1327; *SRI Int’l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed.Cir.1985). In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. *Gemstar–TV Guide*,

383 F.3d at 1366. That is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.

To avoid importing limitations from the specification into the claims, it is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so. See *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533 (Fed.Cir.1987). One of the best ways to teach a person of ordinary skill in the art how to make and use the invention is to provide an example of how to practice the invention in a particular case. Much of the time, upon reading the specification in that context, it will become clear whether the patentee is setting out specific examples of the invention to accomplish those goals, or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive. See *SciMed Life Sys.*, 242 F.3d at 1341. The manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent. See *Snow v. Lake Shore & M.S. Ry. Co.*, 121 U.S. 617, 630, 7 S.Ct. 1343, 30 L.Ed. 1004 (1887) (it was clear from the specification that there was “nothing in the context to indicate that the patentee contemplated any alternative” embodiment to the one presented).

In the end, there will still remain some cases in which it will be hard to determine whether a person of skill in the art would understand the embodiments to define the outer limits of the claim term or merely to be exemplary in nature. While that task may present difficulties in some cases, we nonetheless believe that attempting to resolve that problem in the context of the *1324 particular patent is likely to capture the scope of the actual invention more accurately than either strictly limiting the scope of the claims to the embodiments disclosed in the specification or divorcing the claim language from the specification.

^[21] In *Vitronics*, this court grappled with the same problem and set forth guidelines for reaching the correct claim construction and not imposing improper limitations on claims. 90 F.3d at 1582. The underlying goal of our decision in *Vitronics* was to increase the likelihood that a court will comprehend how a person of ordinary skill in the art would understand the claim terms. See *id.* at 1584. In that process, we recognized that there is no magic formula or catechism for conducting claim construction. Nor is the court barred from considering any particular sources or required to analyze sources in any specific

sequence, as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence. See *id.* at 1583–84; *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1367 (Fed.Cir.2003). For example, a judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term. The sequence of steps used by the judge in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law. *Vitronics*, 90 F.3d at 1582. In *Vitronics*, we did not attempt to provide a rigid algorithm for claim construction, but simply attempted to explain why, in general, certain types of evidence are more valuable than others. Today, we adhere to that approach and reaffirm the approach to claim construction outlined in that case, in *Markman*, and in *Innova*. We now turn to the application of those principles to the case at bar.

IV

A

^[22] The critical language of claim 1 of the '798 patent—“further means disposed inside the shell for increasing its load bearing capacity comprising internal steel baffles extending inwardly from the steel shell walls”—imposes three clear requirements with respect to the baffles. First, the baffles must be made of steel. Second, they must be part of the load-bearing means for the wall section. Third, they must be pointed inward from the walls. Both parties, stipulating to a dictionary definition, also conceded that the term “baffles” refers to objects that check, impede, or obstruct the flow of something. The intrinsic evidence confirms that a person of skill in the art would understand that the term “baffles,” as used in the '798 patent, would have that generic meaning.

The other claims of the '798 patent specify particular functions to be served by the baffles. For example, dependent claim 2 states that the baffles may be “oriented with the panel sections disposed at angles for deflecting projectiles such as bullets able to penetrate the steel

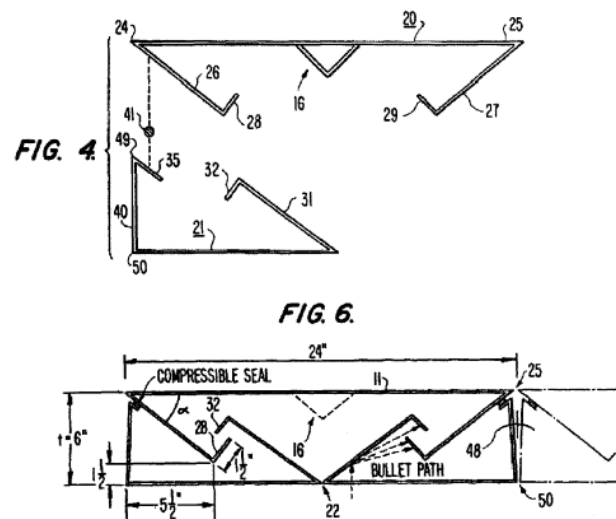
plates.” The inclusion of such a specific limitation on the term “baffles” in claim 2 makes it likely that the patentee did not contemplate that the term “baffles” already contained that limitation. *See Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341–42 (Fed.Cir.2000) (concluding that an independent claim should be given broader scope than a dependent claim to avoid rendering the dependent claim redundant). Independent claim 17 further supports that proposition. It states that baffles are *1325 placed “projecting inwardly from the outer shell at angles tending to deflect projectiles that penetrate the outer shell.” That limitation would be unnecessary if persons of skill in the art understood that the baffles inherently served such a function. *See TurboCare*, 264 F.3d at 1123 (claim terms should not be read to contain a limitation “where another claim restricts the invention in exactly the [same] manner”). Dependent claim 6 provides an additional requirement for the baffles, stating that “the internal baffles of both outer panel sections overlap and interlock at angles providing deflector panels extending from one end of the module to the other.” If the baffles recited in claim 1 were inherently placed at specific angles, or interlocked to form an intermediate barrier, claim 6 would be redundant.

The specification further supports the conclusion that persons of ordinary skill in the art would understand the baffles recited in the '798 patent to be load-bearing objects that serve to check, impede, or obstruct flow. At several points, the specification discusses positioning the baffles so as to deflect projectiles. *See '798 patent*, col. 2, II. 13–15; *id.*, col. 5, II. 17–19. The patent states that one advantage of the invention over the prior art is that “[t]here have not been effective ways of dealing with these powerful impact weapons with inexpensive housing.” *Id.*, col. 3, II. 28–30. While that statement makes clear the invention envisions baffles that serve that function, it does not imply that in order to qualify as baffles within the meaning of the claims, the internal support structures must serve the projectile-deflecting function in all the embodiments of all the claims. The specification must teach and enable all the claims, and the section of the written description discussing the use of baffles to deflect projectiles serves that purpose for claims 2, 6, 17, and 23, which specifically claim baffles that deflect projectiles. *See In re Wright*, 999 F.2d 1557, 1561 (Fed.Cir.1993).

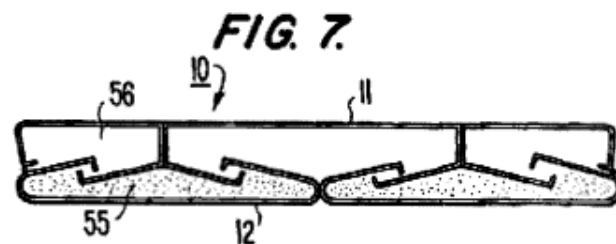
The specification discusses several other purposes served by the baffles. For example, the baffles are described as providing structural support. The patent states that one way to increase load-bearing capacity is to use “at least in part inwardly directed steel baffles 15, 16.” '798 patent, col. 4, II. 14–15. The baffle 16 is described as a

“strengthening triangular baffle.” *Id.*, col. 4, line 37. Importantly, Figures 4 and 6 do not show the baffles as part of an “intermediate interlocking, but not solid, internal barrier.” In those figures, the baffle 16 simply provides structural support for one of the walls, as depicted below:

*1326



Other uses for the baffles are listed in the specification as well. In Figure 7, the overlapping flanges “provide for overlapping and interlocking the baffles to produce substantially an intermediate barrier wall between the opposite [wall] faces”:



'798 patent, col. 5, II. 26–29. Those baffles thus create small compartments that can be filled with either sound and thermal insulation or rock and gravel to stop projectiles. *Id.*, col. 5, II. 29–34. By separating the interwall area into compartments (see, e.g., compartment 55 in Figure 7), the user of the modules can choose different types of material for each compartment, so that the module can be “easily custom tailored for the specific needs of each installation.” *Id.*, col. 5, II. 36–37. When material is placed into the wall during installation, the baffles obstruct the flow of material from one compartment to another so that this “custom tailoring” is

possible.

^{123]} The fact that the written description of the '798 patent sets forth multiple *1327 objectives to be served by the baffles recited in the claims confirms that the term “baffles” should not be read restrictively to require that the baffles in each case serve all of the recited functions. We have held that “[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives.” *Liebel–Flarsheim*, 358 F.3d at 908; *see also Resonate Inc. v. Alteon Websystems, Inc.*, 338 F.3d 1360, 1367 (Fed.Cir.2003). Although deflecting projectiles is one of the advantages of the baffles of the '798 patent, the patent does not require that the inward extending structures always be capable of performing that function. Accordingly, we conclude that a person of skill in the art would not interpret the disclosure and claims of the '798 patent to mean that a structure extending inward from one of the wall faces is a “baffle” if it is at an acute or obtuse angle, but is not a “baffle” if it is disposed at a right angle.

B

^{124]} Invoking the principle that “claims should be so construed, if possible, as to sustain their validity,” *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed.Cir.1999), AWH argues that the term “baffles” should be given a restrictive meaning because if the term is not construed restrictively, the asserted claims would be invalid.

While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction. *See Nazomi Communications*, 403 F.3d at 1368–69. Instead, we have limited the maxim to cases in which “the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.” *Liebel–Flarsheim*, 358 F.3d at 911; *see also Generation II Orthotics Inc. v. Med. Tech. Inc.*, 263 F.3d 1356, 1365 (Fed.Cir.2001) (“[C]laims can only be construed to preserve their validity where the proposed claim construction is ‘practicable,’ is based on sound claim construction principles, and does not revise or ignore the explicit language of the claims.”); *Elekta Instrument S.A. v. O.U.R. Scientific Int’l, Inc.*, 214 F.3d 1302, 1309 (Fed.Cir.2000) (“having concluded that the amended claim is susceptible of only one reasonable

construction, we cannot construe the claim differently from its plain meaning in order to preserve its validity”); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1434 (Fed.Cir.1988) (rejecting argument that limitations should be added to claims to preserve the validity of the claims). In such cases, we have looked to whether it is reasonable to infer that the PTO would not have issued an invalid patent, and that the ambiguity in the claim language should therefore be resolved in a manner that would preserve the patent’s validity.

That is the rationale that gave rise to the maxim in the first place. In *Klein v. Russell*, 86 U.S. (19 Wall.) 433, 466, 22 L.Ed. 116 (1873), the owner of a reissued patent argued for a narrow construction of the patent, while the accused infringer argued for a broader construction. The Court noted that the law “required that the reissue should be for the same invention as the original patent.” *Id.* Because the reissue, which was granted under the predecessor to 35 U.S.C. § 251, would have been improper under the broader construction, the Court “presumed the Commissioner did his duty” and did not issue an invalid patent. For that reason, among others, the Court construed the *1328 disputed claim language in a manner that “sustain[ed] the patent and the construction claimed by the patentee,” since that “can be done consistently with the language which he has employed.” *Id.* The applicability of the doctrine in a particular case therefore depends on the strength of the inference that the PTO would have recognized that one claim interpretation would render the claim invalid, and that the PTO would not have issued the patent assuming that to be the proper construction of the term.

In this case, unlike in *Klein* and other cases in which the doctrine of construing claims to preserve their validity has been invoked, the claim term at issue is not ambiguous. Thus, it can be construed without the need to consider whether one possible construction would render the claim invalid while the other would not. The doctrine of construing claims to preserve their validity, a doctrine of limited utility in any event, therefore has no applicability here.

In sum, we reject AWH’s arguments in favor of a restrictive definition of the term “baffles.” Because we disagree with the district court’s claim construction, we reverse the summary judgment of noninfringement. In light of our decision on claim construction, it is necessary to remand the infringement claims to the district court for further proceedings.

V

With respect to Mr. Phillips’s allegation of misappropriation of trade secrets, we agree with the panel’s decision upholding the district court’s ruling on that issue, in which the district court dismissed the trade secret claim on statute of limitations grounds. *See Phillips*, 363 F.3d at 1214–1216. Accordingly, based on the panel’s disposition of that issue, we affirm the district court’s dismissal of the trade secret claim. With respect to AWH’s cross-appeal, we also agree with the panel’s reasoning and its conclusion that the cross-appeal is improper. *See id.* at 1216. We therefore dismiss the cross-appeal.

VI

In our order granting rehearing en banc, we asked the parties to brief various questions, including the following: “Consistent with the Supreme Court’s decision in *Markman v. Westview Instruments*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), and our en banc decision in *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed.Cir.1998), is it appropriate for this court to accord any deference to any aspect of trial court claim construction rulings? If so, on what aspects, in what circumstances, and to what extent?” After consideration of the matter, we have decided not to address that issue at this time. We therefore leave undisturbed our prior en banc decision in *Cybor*.

Each party shall bear its own costs for this appeal.

AFFIRMED IN PART, REVERSED IN PART, DISMISSED IN PART, and REMANDED.

LOURIE, Circuit Judge, concurring in part and dissenting in part, with whom PAULINE NEWMAN, Circuit Judge, joins.

I fully join the portion of the court’s opinion resolving the relative weights of specification and dictionaries in interpreting patent claims, in favor of the specification. I could elaborate more expansively on that topic, but Judge Bryson’s opinion for the majority says it so well, there is little reason for me to repeat its truths. I also agree with the court that claims need not necessarily be limited to

specific or preferred embodiments in the specification, although they are limited to what is *1329 contained in the overall disclosure of the specification.

However, I do dissent from the court’s decision to reverse and remand the district court’s decision. The original panel decision of this court, which implicitly decided the case based on the priorities that the en banc court has now reaffirmed, interpreted the claims in light of the specification and found that the defendant did not infringe the claims. We affirmed the district court, which had arrived at a similar conclusion. The dissent from the panel decision relied on the “dictionaries first” procedure, which the court now has decided not to follow. Thus, while the claim construction issue had to be decided by the en banc court, I see no reason for the court, having reaffirmed the principle on which the district judge and the panel originally decided the case, to send it back for further review.

The court premises its reverse-and-remand decision on the concept of claim differentiation and the reasoning that the contested term “baffle” need not fulfill all of the functions set out for it in the specification. Reasonable people can differ on those points. However, the court did not take this case en banc because the full court differed with the panel majority on those disputable criteria. It did so to resolve the claim construction issue, which it has now done so well. Having done so, I believe that it should simply affirm the district court’s decision on the merits, consistently with that court’s rationale and that of the panel that affirmed the district court, which it now adopts.

I will not critique in detail particular statements the majority makes in rationalizing its reversal of the district court’s decision, such as “that a person of skill in the art would not interpret the disclosure and claims of the ’798 patent to mean that a structure extending inward from one of the wall faces is a ‘baffle’ if it is at an acute or obtuse angle, but is not a ‘baffle’ if it is disposed at a right angle,” or that “the patent does not require that the inward extending structures always be capable of performing that function [deflecting projectiles]” in order to be considered ‘baffles’.

I will simply point out that the specification contains no disclosure of baffles at right angles. Moreover, as the majority correctly states, a patent specification is intended to describe one’s invention, and it is essential to read a specification in order to interpret the meaning of the claims. This specification makes clear that the “baffles” in this invention are angled. There is no reference to baffles that show them to be other than angled. The abstract refers to “bullet deflecting ... baffles.” Only angled baffles

can deflect. It then mentions “internal baffles at angles for deflecting bullets.” That could not be clearer. The specification then refers several times to baffles, often to figures in the drawings, all of which are to angled baffles. A compelling point is that the only numbered references to baffles (15, 16, 26, 27, 30, and 31) all show angled baffles.

The specification further states that steel panels “form the internal baffles at angles for deflecting bullets.” It states that the baffles are “disposed at such angles that bullets which might penetrate the outer steel panels are deflected.” It explains that if bullets “were to penetrate the outer steel wall, the baffles are disposed at angles which tend to deflect the bullets.” There is no specific reference in this patent to a baffle that is not angled at other than 90.

While, as the majority states, the specification indicates that multiple objectives are achieved by the invention, none of the other objectives is dependent upon whether the baffles are at other than a 90 angle, whereas the constantly stated objective of *1330 deflection of bullets is dependent upon such an angle.

Finally, even though claim construction is a question of law, reviewable by this court without formal deference, I do believe that we ought to lean toward affirmance of a claim construction in the absence of a strong conviction of error. I do not have such a conviction in this case, after considering the district court’s opinion and the patent specification.

For these reasons, while I wholeheartedly join the majority opinion in its discussion and resolution of the “specification v. dictionaries” issue, I would affirm the decision below.

MAYER, Circuit Judge, with whom PAULINE NEWMAN, Circuit Judge, joins, dissenting.

Now more than ever I am convinced of the futility, indeed the absurdity, of this court’s persistence in adhering to the falsehood that claim construction is a matter of law devoid of any factual component. Because any attempt to fashion a coherent standard under this regime is pointless, as illustrated by our many failed attempts to do so, I dissent.

This court was created for the purpose of bringing consistency to the patent field. See H.R.Rep. No. 312, 97th Cong., 1st Sess. 20–23 (1981). Instead, we have

taken this noble mandate, to reinvigorate the patent and introduce predictability to the field, and focused inappropriate power in this court. In our quest to elevate our importance, we have, however, disregarded our role as an appellate court; the resulting mayhem has seriously undermined the legitimacy of the process, if not the integrity of the institution.

In the name of uniformity, *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed.Cir.1998) (en banc), held that claim construction does not involve subsidiary or underlying questions of fact and that we are, therefore, unbridled by either the expertise or efforts of the district court.¹ What we have wrought, instead, is the substitution of a black box, as it so pejoratively has been said of the jury, with the black hole of this court. Out of this void we emit “legal” pronouncements by way of “interpretive necromancy”²; these rulings resemble reality, if at all, only by chance. Regardless, and with a blind eye to the consequences, we continue to struggle under this irrational and reckless regime, trying every alternative—dictionaries first, dictionaries second, never dictionaries, etc., etc., etc.

Again today we vainly attempt to establish standards by which this court will interpret claims. But after proposing no fewer than seven questions, receiving more than thirty *amici curiae* briefs, and whipping the bar into a frenzy of expectation, we say nothing new, but merely restate what has become the practice over the last ten years—that we will decide cases according to whatever mode or method results in the outcome we desire, or at least allows us a seemingly plausible way out of the case. I am not surprised by this. *1331 Indeed, there can be no workable standards by which this court will interpret claims so long as we are blind to the factual component of the task. See *Cooter & Gell v. Hartmarx Corp.*, 496 U.S. 384, 405, 110 S.Ct. 2447, 110 L.Ed.2d 359 (1990) (“Fact-bound resolutions cannot be made uniform through appellate review, de novo or otherwise.” (quoting *Mars Steel Corp. v. Cont’l Bank N.A.*, 880 F.2d 928, 936 (7th Cir.1989))).³

Federal Rule of Civil Procedure 52(a) states that “[f]indings of fact ... shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of witnesses.” According to the Supreme Court, this “[r]ule means what it says”—that findings of fact, even “those described as ‘ultimate facts’ because they may determine the outcome of litigation,” are to be reviewed deferentially on appeal.⁴ *Bose Corp. v. Consumers Union of United States*, 466 U.S. 485, 498 & 501, 104 S.Ct. 1949, 80 L.Ed.2d 502 (1984); see also *Anderson v. Bessemer City*, 470 U.S. 564, 575, 105 S.Ct. 1504, 84

L.Ed.2d 518 (1985) (“[R]eview of factual findings under the clearly-erroneous standard—with its deference to the trier of fact—is the rule, not the exception.”); *Pullman–Standard v. Swint*, 456 U.S. 273, 287, 102 S.Ct. 1781, 72 L.Ed.2d 66 (1982) (“Rule 52(a) broadly requires that findings of fact not be set aside unless clearly erroneous.”); *United States v. United States Gypsum Co.*, 333 U.S. 364, 394, 68 S.Ct. 525, 92 L.Ed. 746 (1948). *1332 Even those findings of fact based entirely on documentary evidence are entitled to deference. *Anderson*, 470 U.S. at 574, 105 S.Ct. 1504 (“That [Rule 52(a)] goes on to emphasize the special deference to be paid credibility determinations does not alter its clear command: Rule 52(a) ‘does not make exceptions or purport to exclude certain categories of factual findings from the obligation of a court of appeals to accept a district court’s findings unless clearly erroneous.’” (quoting *Pullman–Standard*, 456 U.S. at 287, 102 S.Ct. 1781)). In short, we are obligated by Rule 52(a) to review the factual findings of the district court that underlie the determination of claim construction for clear error.

While this court may persist in the delusion that claim construction is a purely legal determination, unaffected by underlying facts, it is plainly not the case. Claim construction is, or should be, made in context: a claim should be interpreted both from the perspective of one of ordinary skill in the art and in view of the state of the art at the time of invention. See *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed.Cir.1998) (“It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed.”). These questions, which are critical to the correct interpretation of a claim, are inherently factual. They are hotly contested by the parties, not by resort to case law as one would expect for legal issues, but based on testimony and documentary evidence.⁵ During so called *Markman* “hearings,” which are often longer than jury trials, parties battle over experts offering conflicting evidence regarding who qualifies as one of ordinary skill in the art; the meaning of patent terms to that person; the state of the art at the time of the invention; contradictory dictionary definitions and which would be consulted by the skilled artisan; the scope of specialized terms; the problem a patent was solving; what is related or pertinent art; whether a construction was disallowed during prosecution; how one of skill in the art would understand statements during prosecution; and on and on. In order to reconcile the parties’ inconsistent submissions and arrive at a sound interpretation, the district court is required to sift through and weigh volumes of evidence. While this court treats the district court as an intake clerk, whose only role is to collect, shuffle and collate evidence, the

reality, as revealed by conventional practice, is far different.

Even if the procedures employed by the district court did not show that it is engaging in factfinding, the nature of the questions underlying claim construction illustrate that they are factual and should be reviewed in accordance with Rule 52(a). For each patent, for example, who qualifies as one of ordinary skill in the art will differ, just as the state of the art at the time of invention will differ. These subsidiary determinations are specific, multifarious and not susceptible to generalization; as such their resolution in one case will bear very little, if at all, on the resolution of subsequent cases. See *Ornelas*, 517 U.S. at 703, 116 S.Ct. 1657 (“Law clarification requires generalization, and some issues lend themselves to generalization much more than others.”); *Pierce v. Underwood*, 487 U.S. 552, 561–62, 108 S.Ct. 2541, 101 L.Ed.2d 490 (1988) (“Many questions that arise in litigation are not amenable *1333 to regulation by rule because they involve multifarious, fleeting, special, narrow facts that utterly resist generalization.” (quoting Maurice Rosenberg, *Judicial Discretion of the Trial Court, Viewed from Above*, 22 Syracuse L.Rev. 635, 662 (1971))); *Icicle Seafoods, Inc. v. Worthington*, 475 U.S. 709, 714, 106 S.Ct. 1527, 89 L.Ed.2d 739 (1986) (rejecting *de novo* review of factual questions, even when outcome determinative). That the determination of the meaning of a particular term in one patent will not necessarily bear on the interpretation of the same term in a subsequent patent illustrates this point; while the term is the same, the underlying factual context is different. It further proves that these questions (e.g., who qualifies as one of ordinary skill in the art and what was the state of the art at the time of invention, among others) are implicitly being determined in each case; because we refuse to acknowledge either their existence or importance, however, the manner of their resolution is never elucidated. Finally, that claim construction is dependent on underlying factual determinations has been verified by our experience, which shows that reviewing these questions *de novo* has not clarified the law, but has instead “distort[ed] the appellate process,” causing confusion among the district courts and bar. See *Cooter*, 496 U.S. at 404, 110 S.Ct. 2447 (quoting *Pierce*, 487 U.S. at 561, 108 S.Ct. 2541); see also *Koon v. United States*, 518 U.S. 81, 99, 116 S.Ct. 2035, 135 L.Ed.2d 392 (1996).

Our purely *de novo* review of claim interpretation also cannot be reconciled with the Supreme Court’s instructions regarding obviousness. While ultimately a question of law, obviousness depends on several underlying factual inquiries. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); see

also *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 811, 106 S.Ct. 1578, 89 L.Ed.2d 817 (1986) (holding that Rule 52(a) requires that the district court’s subsidiary factual determinations should be reviewed for clear error); cf. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 336 U.S. 271, 275, 69 S.Ct. 535, 93 L.Ed. 672 (1949) (holding that validity, while ultimately a question of law, is founded on factual determinations that are entitled to deference). “Under [section] 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” *Graham*, 383 U.S. at 17, 86 S.Ct. 684.

To a significant degree, each of these factual inquiries is also necessary to claim construction. Before beginning claim construction, “the scope and content of the prior art [should] be determined,” *id.*, to establish context. The “differences between the prior art and the claims at issue [should] be ascertained,” *id.*, to better define what the inventor holds out as the invention. And, the foundation for both the obviousness and claim construction determinations is “the level of ordinary skill in the pertinent art.” *Id.*; see *Multiform*, 133 F.3d at 1477. These underlying factual considerations receive the level of deference due under Rule 52(a) when considering obviousness, but they are scrutinized *de novo* in the claim construction context. As directed by the Supreme Court, however, it is especially important in the patent field, “where so much depends upon familiarity with specific scientific problems and principles not usually contained in the general storehouse of knowledge and experience,” to give deference to the district court’s findings of fact. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609–10, 70 S.Ct. 854, 94 L.Ed. 1097 (1950).

*1334 While the court flails about in an attempt to solve the claim construction “conundrum,” the solution to our plight is straightforward. We simply must follow the example of every other appellate court, which, regarding the vast majority of factual questions, reviews the trial court for clear error.⁶ This equilibrium did not come about as the result of chance or permissive appellate personalities, but because two centuries of experience has shown that the trial court’s factfinding ability is “unchallenged.” *Salve Regina Coll. v. Russell*, 499 U.S. 225, 233, 111 S.Ct. 1217, 113 L.Ed.2d 190 (1991); *Inwood*, 456 U.S. at 856, 102 S.Ct. 2182 (“Determining the weight and credibility of the evidence is the special province of the trier of fact.”). Time has similarly revealed that it is more economical for the district court to find facts. *Pierce*, 487 U.S. at 560, 108 S.Ct. 2541 (“Moreover, even where the district judge’s full knowledge of the factual setting can be acquired by the

appellate court, that acquisition will often come at unusual expense, requiring the court to undertake the unaccustomed task of reviewing the entire record”).

Therefore, not only is it more efficient for the trial court to construct the record, the trial court is *better*, that is, more accurate, by way of both position and practice, at finding facts than appellate judges. *Anderson*, 470 U.S. at 574, 105 S.Ct. 1504 (“The rationale for deference to the original finder of fact is not limited to the superiority of the trial judge’s position to make determinations of credibility. The trial judge’s major role is the determination of fact, and with experience on fulfilling that role comes expertise.”); *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 123, 89 S.Ct. 1562, 23 L.Ed.2d 129 (1969). Our rejection of this fundamental premise has resulted, not surprisingly, in several serious problems, including increased litigation costs, needless consumption of judicial resources, and uncertainty, as well as diminished respect for the court and less “decisional accuracy.” *Salve*, 499 U.S. at 233, 111 S.Ct. 1217. We should abandon this unsound course.⁷


If we persist in deciding the subsidiary factual components of claim construction without deference, there is no reason why litigants should be required to parade their evidence before the district courts or for district courts to waste time and resources evaluating such evidence. It is excessive to require parties, who “have already been forced to concentrate their energies and resources on persuading the trial judge that their account of the facts is the correct one,” to “persuade three more judges at the appellate level.” *Anderson*, 470 U.S. at 575, 105 S.Ct. 1504. If the proceedings before the district court are merely a “tryout on the road,” *id.* (quoting *Wainwright v. Sykes*, 433 U.S. 72, 90, 97 S.Ct. 2497, 53 L.Ed.2d 594 (1977)), as they are under our current regimen, it is wasteful to require such proceedings at all. Instead, all patent cases could be filed in this court; we would determine whether claim construction is necessary, and, if so, the meaning of the claims. Those few cases in which claim construction is not dispositive can be remanded to the district court for trial. In this way, we would at least eliminate the time and expense of the charade currently played out before the district court.

Eloquent words can mask much mischief. The court’s opinion today is akin to *1335 rearranging the deck chairs on the Titanic—the orchestra is playing as if nothing is amiss, but the ship is still heading for Davey Jones’ locker.

All Citations

Footnotes

- 1 The Supreme Court did not suggest in affirming *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (1995) (en banc), that claim construction is a purely legal question. 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). It held only that, as a policy matter, the judge, as opposed to the jury, should determine the meaning of a patent claim. See *Cybor*, 138 F.3d at 1464 (Mayer, C.J., dissenting) (explaining that “the [Supreme] Court chose not to accept our formulation of claim construction: as a pure question of law to be decided *de novo* in all cases on appeal”).
- 2 See *The Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 833, 122 S.Ct. 1889, 153 L.Ed.2d 13 (2002).
- 3 The question asked but not answered by the court which might have allowed it to cure its self-inflicted wound was: “Question 7. Consistent with the Supreme Court’s decision in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) and our *en banc* decision in *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed.Cir.1998), is it appropriate for this court to accord any deference to any aspect of trial court claim construction rulings? If so, on what aspects, in what circumstances, and to what extent?”
- 4 Because some facts are so intertwined with a constitutional standard the Supreme Court has held that *de novo* review is appropriate. For example, whether a defendant has acted with actual malice in a defamation suit is reviewed *de novo* because, among other reasons, the scope of the First Amendment is shaped and applied by reference to such factual determinations. *Bose*, 466 U.S. at 502, 104 S.Ct. 1949 (“[T]he content of the rule is not revealed simply by its literal text, but rather is given meaning through the evolutionary process of common-law adjudication.”). Similarly, whether there is reasonable suspicion to conduct an investigatory stop or probable cause to perform a search under the Fourth Amendment are reviewed without deference. *Ornelas v. United States*, 517 U.S. 690, 696, 116 S.Ct. 1657, 134 L.Ed.2d 911 (1996) (holding that the protections afforded by the Fourth Amendment are “fluid concepts that take their substantive content from the particular contexts in which the standards are being assessed”). The reasoning behind these limited exceptions surely does not apply to claim construction. While appearing from the perspective of this court’s limited sphere of influence to be dreadfully important, claim construction does not implicate a constitutional value. Cf. *Bose*, 466 U.S. at 502, 104 S.Ct. 1949 (“[T]he constitutional values protected by the rule make it imperative that judges—and in some cases judges of [the Supreme] Court—make sure that it is correctly applied.”). This is illustrated by the fact that the outcome of a patent case, unlike a defamation or illegal search case, has little impact on how future cases are decided or on how future parties behave. Cf. *id.* at 501 n. 17, 104 S.Ct. 1949 (“Regarding certain largely factual questions in some areas of the law, the stakes—in terms of impact on future cases and future conduct—are too great to entrust them finally to the judgment of the trier of fact.”). Even if claim construction did implicate a constitutional value, it, unlike the decisions underlying the First and Fourth Amendments, could readily be reduced, when distinguished from its factual underpinnings, to “a neat set of legal rules.” *Ornelas*, 517 U.S. at 695–96, 116 S.Ct. 1657 (quoting *Ill. v. Gates*, 462 U.S. 213, 232, 103 S.Ct. 2317, 76 L.Ed.2d 527 (1983)).
- 5 That most of the cases now appealed to this court are “summary judgments” is irrelevant. We have artificially renamed findings of fact as legal conclusions; the district courts have dutifully conformed to our fictional characterization, but this does not change the inherent nature of the inquiry. Of course, if the parties do not dispute the material facts, summary judgment is appropriate.
- 6 While jurisprudentially sound, the bar also supports this proposition, as evident by the many *amici curiae* briefs urging adherence to Rule 52(a).
- 7 There are some scenarios where it is difficult to weed facts from law, see *Pullman–Standard*, 456 U.S. at 288, 102 S.Ct. 1781, but claim construction is not one of them.

 KeyCite Yellow Flag - Negative Treatment
Disagreement Recognized by [Comcast Cable Communications, LLC v. Sprint Communications Company, LP](#), E.D.Pa., August 16, 2017

711 F.3d 1348
United States Court of Appeals,
Federal Circuit.

POWER INTEGRATIONS, INC.,
Plaintiff–Cross Appellant,
v.
FAIRCHILD SEMICONDUCTOR
INTERNATIONAL, INC. and Fairchild
Semiconductor Corporation,
Defendants–Appellants.

Nos. 2011–1218, 2011–1238.

March 26, 2013.

Rehearing and Rehearing En Banc Denied May
28, 2013.

Synopsis

Background: Patentee brought action against competitor for infringement of patents for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices. The United States District Court for the District of Delaware, Joseph J. Farnan, Jr., J., 422 F.Supp.2d 446 and 2009 WL 4928029, and, Leonard P. Stark, J., 2012 WL 938926, construed claims, Farnan, Jr., J., 2006 WL 2435084, granted competitor’s motion for summary judgment limiting damages, jury found patents valid and willfully infringed, Farnan, Jr., J., 2008 WL 5263899, denied patentee’s motion for an accounting, 578 F.Supp.2d 698, found patents were not procured by inequitable conduct, 585 F.Supp.2d 568, denied competitor’s motion for judgment as a matter of law (JMOL), 589 F.Supp.2d 505, granted competitor’s motion for remittitur, 725 F.Supp.2d 474, granted new trial on willful infringement but sustained finding of willfulness, and, 762 F.Supp.2d 710, awarded double rather than treble damages but no attorney’s fees. Parties appealed.

Holdings: The Court of Appeals, Reyna, Circuit Judge, held that:

[1] “frequency variation signal” meant an internal signal

that cyclically varied in magnitude during a fixed period of time and was used to modulate the frequency of an oscillation signal within a predetermined frequency range;

[2] “soft start circuit” claim limitation recited sufficient structure to avoid means-plus-function claiming;

[3] jury’s finding of nonobviousness was supported by substantial evidence of objective considerations;

[4] patentee was not entitled to compensatory damages for lost foreign sales;

[5] district court abused its discretion in admitting testimony of patentee’s damages expert;

[6] evidence of induced infringement was insufficient to support remitted damages award;

[7] jury’s implicit finding of direct infringement was supported by substantial evidence;

[8] evidence of pre-notice price erosion was admissible when determining patentee’s damages for post-notice infringement; and

[9] patentee preserved its right to an accounting for competitor’s post-verdict infringement.

Affirmed in part, reversed in part, vacated in part, and remanded.

West Headnotes (54)

[1] Patents—Scope, Standard, and Extent of Review

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1966 In general
(Formerly 291k324.5)

Court of Appeals reviews issues of patent claim construction without deference.

[2] **Patents** → Scope, Standard, and Extent of Review

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1966 In general
(Formerly 291k324.5)

Whether a patent claim limitation invokes means-plus-function claiming is an exercise in claim construction which the Court of Appeals reviews without deference. 35 U.S.C.A. § 112(f).

9 Cases that cite this headnote

[3] **Federal Courts** → Taking case or question from jury; judgment as a matter of law

170B Federal Courts
170BXVII Courts of Appeals
170BXVII(K) Scope and Extent of Review
170BXVII(K)2 Standard of Review
170Bk3576 Procedural Matters
170Bk3605 Taking case or question from jury; judgment as a matter of law
(Formerly 170Bk765)

Court of Appeals reviews a district court's denial of a motion for judgment as a matter of law (JMOL) without deference.

2 Cases that cite this headnote

[4] **Patents** → Questions of law or fact
Patents → Obviousness; lack of invention

291 Patents
291II Patentability and Validity
291II(E) Obviousness; Lack of Invention
291II(E)4 Evidence and Determination
291k800 Questions of law or fact
(Formerly 291k16.13)

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(2) Patentability and Validity
291k1970(7) Obviousness; lack of invention
(Formerly 291k324.55(4), 291k324.5)

Obviousness of patent is a question of law based on underlying factual findings, and Court of Appeals reviews a jury's ultimate conclusions on obviousness without deference, but reviews the jury's findings of fact for substantial evidence.

4 Cases that cite this headnote

[5] **Patents** → Obviousness; lack of invention

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(2) Patentability and Validity
291k1970(7) Obviousness; lack of invention
(Formerly 291k324.55(4))

Objective evidence of secondary considerations of patent's nonobviousness are fact determinations which Court of Appeals reviews for substantial evidence.

11 Cases that cite this headnote

[6] **Federal Courts** → Expert evidence and witnesses

170B Federal Courts
170BXVII Courts of Appeals
170BXVII(K) Scope and Extent of Review
170BXVII(K)2 Standard of Review
170Bk3576 Procedural Matters
170Bk3600 Expert evidence and witnesses
(Formerly 170Bk823)

Court of Appeals reviews district court's ruling

on admissibility of expert testimony for abuse of discretion.

[14 Cases that cite this headnote](#)

[7] Federal Courts → Reception of Evidence

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3576Procedural Matters
170Bk3598Evidence
170Bk3598(2)Reception of Evidence
170Bk3598(3)In general
(Formerly 170Bk763.1)

To the extent the district court's evidentiary ruling turns on an interpretation of a Federal Rule of Evidence, Court of Appeals' review is plenary.

[8] Federal Courts → Damages or Other Monetary Relief

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3612Remedial Matters
170Bk3614Damages or Other Monetary Relief
170Bk3614(1)In general
(Formerly 170Bk871)

Court of Appeals will not disturb a jury's damages award unless unsupported by substantial evidence or contrary to the limits established by law.

[1 Cases that cite this headnote](#)

[9] Patents → Profits and damages

291Patents
291VIIPatent Infringement

291VII(C)Actions
291VII(C)7Appellate Review
291k1965Scope, Standard, and Extent of Review
291k1970Particular Matters
291k1970(17)Relief
291k1970(19)Profits and damages
(Formerly 291k324.5)

Court of Appeals considers issues regarding what types of damages are legally compensable in an action for patent infringement without deference to the trial court.

[10] Federal Courts → Inadequate or excessive damages

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3576Procedural Matters
170Bk3606New Trial, Rehearing, or Reconsideration
170Bk3606(3)Inadequate or excessive damages
(Formerly 170Bk827)

Court of Appeals reviews a district court's decision to grant or withhold a remittitur for manifest abuse of discretion.

[3 Cases that cite this headnote](#)

[11] Federal Courts → Damages or Other Monetary Relief

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3612Remedial Matters
170Bk3614Damages or Other Monetary Relief
170Bk3614(1)In general
(Formerly 170Bk871)

Court of Appeals reviews the amount of the district court's remittitur on the basis of whether it exceeds the maximum award supported by substantial evidence.

[12] Patents → Willful infringement
Patents → Participation, intent, and contributory infringement

291 Patents
291 VII Patent Infringement
291 VII(A) In General
291k1559 Intent or Purpose, and Knowledge
291k1561 Willful infringement
(Formerly 291k227)
291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)3 Evidence
291k1825 Weight and Sufficiency
291k1832 Participation, intent, and contributory infringement
(Formerly 291k312(8))

Patentee alleging willful infringement must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.

[3 Cases that cite this headnote](#)

[13] Patents → Scope, Standard, and Extent of Review

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1966 In general
(Formerly 291k324.5)

Court of Appeals reviews without deference whether patentee alleging willful infringement adduced clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.

[2 Cases that cite this headnote](#)

[14] Patents → Willful infringement

291 Patents
291 VII Patent Infringement
291 VII(A) In General
291k1559 Intent or Purpose, and Knowledge
291k1561 Willful infringement
(Formerly 291k227)

Patentee alleging willful infringement must demonstrate that an objectively high likelihood of infringement was either known or so obvious that it should have been known to the accused infringer.

[4 Cases that cite this headnote](#)

[15] Patents → Infringement or noninfringement

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(15) Infringement or noninfringement
(Formerly 291k324.55(5))

Whether patentee alleging willful infringement has shown that the alleged infringer either knew or should have known of objectively high likelihood of infringement is question of fact which Court of Appeals reviews for substantial evidence.

[2 Cases that cite this headnote](#)

[16] Patents → Language of claims in general

291 Patents
291 V Construction and Operation of Patents
291 V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1316 Language of claims in general
(Formerly 291k165(3))

Patent claim construction begins with the

language of the claim.

9 Cases that cite this headnote

[17] Patents → Language of claims in general

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1316 Language of claims in general (Formerly 291k157(1))

Court presumes that the terms in patent claim mean what they say.

1 Cases that cite this headnote

[18] Patents → Specifications and Drawings; Written Description

Patents → Effect of drawings, diagrams, and models
Patents → Rejection and Amendment of Claims; Prosecution History
Patents → Extrinsic Evidence

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general (Formerly 291k167(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1333 Effect of drawings, diagrams, and models (Formerly 291k167(1.2))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1335 Accompanying Documents and Proceedings in Patent and Trademark Office
291k1338 Rejection and Amendment of Claims; Prosecution History
291k1338(1) In general (Formerly 291k168(2.1))

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1344 Extrinsic Evidence
291k1345 In general (Formerly 291k159)

Court interprets patent claim's words in light of the intrinsic evidence of record, including the written description, the drawings, and the prosecution history, but where the intrinsic record is ambiguous, and when necessary, court relies on extrinsic evidence, which consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.

38 Cases that cite this headnote

[19] Patents → Plain, ordinary, or customary meaning in general
Patents → Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1317 Plain, ordinary, or customary meaning in general (Formerly 291k157(1))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general (Formerly 291k167(1))

If patent claim term has a plain and ordinary meaning, court's inquiry ends, but if claim term does not have an ordinary meaning, and its meaning is not clear from a plain reading of the claim, court turns to the remaining intrinsic evidence, including the written description, to aid in construction of term.

36 Cases that cite this headnote

[20] **Patents** → Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k167(1))

Specification is always highly relevant to patent claim construction analysis; usually, specification is dispositive, and it is the single best guide to the meaning of a disputed term.

[25 Cases that cite this headnote](#)

[21] **Patents** → Language of claims in general
Patents → Specifications and Drawings; Written Description

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1316 Language of claims in general
(Formerly 291k165(3))
291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1328 In general
(Formerly 291k167(1))

Patent claim construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

[5 Cases that cite this headnote](#)

[22] **Patents** → Dictionaries, encyclopedias, treatises, and other reference works

291 Patents
291V Construction and Operation of Patents

291V(A) In General
291k1344 Extrinsic Evidence
291k1346 Dictionaries, encyclopedias, treatises, and other reference works
(Formerly 291k159)

Unless the inventor intended a patent claim term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to read the term to encompass a broader definition simply because it may be found in a dictionary, treatise, or other extrinsic source.

[16 Cases that cite this headnote](#)

[23] **Patents** → Power generation and transmission

291 Patents
291V Construction and Operation of Patents
291V(C) Particular Fields of Invention
291k1398 Electricity and Electronics
291k1400 Power generation and transmission
(Formerly 291k101(2))

“Frequency variation signal,” in patents for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices, meant an internal signal that cyclically varied in magnitude during a fixed period of time and was used to modulate the frequency of an oscillation signal within a predetermined frequency range.

[24] **Patents** → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291V(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention
(Formerly 291k101(8))

“Means-plus-function limitations” permit a patentee to claim an element of her invention in terms of the element's function, without in the claim itself reciting the corresponding structure.

35 U.S.C.A. § 112(f).

8 Cases that cite this headnote

5 Cases that cite this headnote

[25] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention (Formerly 291k101(8))

If a patent claim term does not use the word “means,” court presumes that means-plus-function claiming does not apply, but if the claim term recites a function without reciting sufficient structure for performing that function, the presumption falls and means-plus-function claiming applies. 35 U.S.C.A. § 112(f).

19 Cases that cite this headnote

[26] Patents → Evidence

291 Patents
291III Patentability and Validity
291III(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k823 Evidence
291k823(1) In general (Formerly 291k101(8))

Whether a patent claim limitation recites sufficient structure to avoid means-plus-function claiming is determined from the vantage point of an ordinarily skilled artisan, and to this end, considering intrinsic and extrinsic evidence is usually helpful in determining whether a claim limitation is so devoid of structure that the drafter constructively engaged in means-plus-function claiming; with respect to intrinsic evidence, a patent’s specification may inform the skilled artisan’s understanding of the structure required by a claim limitation. 35 U.S.C.A. § 112(f).

[27] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention (Formerly 291k101(8))

In determining whether the word “circuit” in a patent claim term invokes means-plus-function claiming, the pivotal issue is whether the circuit limitation as properly construed recites sufficiently definite structure, and a description of the circuit’s operation may provide sufficiently definite structure as can certain adjectival qualifications; the proper inquiry is whether the claim limitation itself, when read in light of the specification, connotes to the ordinarily skilled artisan sufficiently definite structure for performing the identified functions.

13 Cases that cite this headnote

[28] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention (Formerly 291k101(8))

In order for patent claim limitation to recite sufficient structure to avoid means-plus-function claiming, it is required only that the claim term be used in common parlance or by ordinarily skilled artisans to designate sufficiently definite structure, even if the term covers a broad class of structures. 35 U.S.C.A. § 112(f).

12 Cases that cite this headnote

[29] Patents → Functions, means, and results of invention

291 Patents
 291IV Patent Applications and Proceedings
 291IV(A) In General
 291k910 Assertion of Claims
 291k915 Functions, means, and results of invention
 (Formerly 291k101(8))

Structure sufficient to avoid means-plus-function claiming was recited by “soft start circuit” claim limitation in patent for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices; claim included functional description of “soft start circuit,” but claim did not include the word “means” and function was sufficiently clear and definitely described to suggest to ordinarily skilled artisan a defined class of structures, as function operated to provide an “off” signal when test for comparison between input signals was met. 35 U.S.C.A. § 112(f).

[3 Cases that cite this headnote](#)

[30] Patents → Functions, means, and results of invention

291 Patents
 291IV Patent Applications and Proceedings
 291IV(A) In General
 291k910 Assertion of Claims
 291k915 Functions, means, and results of invention
 (Formerly 291k101(8))

Structure sufficient to avoid means-plus-function claiming was recited by “soft start circuit” claim limitation in patent for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices; skilled artisan would understand the claim limitation as referring to various soft start circuit structures which accomplished the functions recited in the patent claims. 35 U.S.C.A. § 112(f).

[2 Cases that cite this headnote](#)

[31] Patents → Electricity and Electronics
Patents → Particular products or processes

291 Patents
 291III Patentability and Validity
 291III(E) Obviousness; Lack of Invention
 291III(E)3 Particular Fields of Invention
 291k758 Electricity and Electronics
 291k759 In general
 (Formerly 291k36.2(9), 291k36.1(2))
 291 Patents
 291III Patentability and Validity
 291III(E) Obviousness; Lack of Invention
 291III(E)4 Evidence and Determination
 291k795 Weight and Sufficiency of Evidence
 291k799 Particular products or processes
 (Formerly 291k36(3))

Jury’s finding that patent claim for alleviating electromagnetic interference in power supplies for electronic devices would not have been obvious to ordinarily skilled artisan, despite prior art teaching similar technique for reducing interference, was supported by substantial evidence of objective considerations of nonobviousness, including testimony that prior art’s inclusion of memory not used in patent added expense and imposed design constraints, that patent had overwhelming commercial success, and that competitor competed with patentee by reversing engineering and copying patentee’s products.

[3 Cases that cite this headnote](#)

[32] Patents → In general; multiple factors
Patents → Commercial Success

291 Patents
 291III Patentability and Validity
 291III(E) Obviousness; Lack of Invention
 291III(E)2 Factors Considered
 291k700 Secondary Factors or Considerations; Objective Indicia or Evidence
 291k701 In general; multiple factors
 (Formerly 291k36.2(1), 291k36.1(1))
 291 Patents
 291III Patentability and Validity
 291III(E) Obviousness; Lack of Invention
 291III(E)2 Factors Considered

291k700Secondary Factors or Considerations;
Objective Indicia or Evidence
291k709Commercial Success
291k709(1)In general
(Formerly 291k36.2(1))

Objective or secondary considerations of patent's nonobviousness are essential components of court's obviousness analysis, and can include copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention.

20 Cases that cite this headnote

[33] **Patents** → Profits

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1900Profits
291k1901In general
(Formerly 291k318(1))

Patentee was not entitled to compensatory damages for lost foreign sales that were the allegedly foreseeable result of competitor's domestic infringement of patents for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices; lost foreign sales were not rooted in competitor's activity in the United States. 35 U.S.C.A. § 284.

14 Cases that cite this headnote

[34] **Patents** → Territorial extent of rights

291Patents
291VIPatent Rights and Duties
291VI(A)In General
291k1437Territorial extent of rights
(Formerly 291k189)

United States patent law does not operate extraterritorially to prohibit infringement abroad, and even indirect infringement, which can encompass conduct occurring elsewhere, requires underlying direct infringement in the United States. 35 U.S.C.A. § 271(f).

23 Cases that cite this headnote

[35] **Patents** → Territorial extent of rights

291Patents
291VIPatent Rights and Duties
291VI(A)In General
291k1437Territorial extent of rights
(Formerly 291k189)

United States patent laws specifically allow damages adequate to compensate for infringement, and do not thereby provide compensation for a defendant's foreign exploitation of a patented invention, which is not infringement at all. 35 U.S.C.A. § 284.

18 Cases that cite this headnote

[36] **Patents** → Territorial extent of rights

291Patents
291VIPatent Rights and Duties
291VI(A)In General
291k1437Territorial extent of rights
(Formerly 291k189)

Entirely extraterritorial production, use, or sale of an invention patented in the United States is an independent, intervening act that, under almost all circumstances, cuts off the chain of causation initiated by an act of domestic infringement, and thus such extraterritorial activity does not entitle the patentee to compensatory damages. 35 U.S.C.A. § 284.

20 Cases that cite this headnote

[37] **Evidence** → Damages

157Evidence
157XIIOpinion Evidence
157XII(D)Examination of Experts
157k555Basis of Opinion
157k555.9Damages

District court abused its discretion in admitting testimony of patentee's damages expert in action for infringement of patents for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices; both source and methodology of expert's testimony regarding sales of mobile phones containing infringing circuits were unreliable, as source of sales documents that expert relied on were unknown, and expert's method was based on speculation that all phone shipments not only included charger, but that all chargers included infringing circuits. 35 U.S.C.A. § 284; Fed.Rules Evid.Rule 702, 28 U.S.C.A.

11 Cases that cite this headnote

[38] **Patents** → Profits and damages

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)3Evidence
291k1825Weight and Sufficiency
291k1834Profits and damages
(Formerly 291k312(10))

Evidence of induced infringement was insufficient to support remitted damages award based on third party sales in United States of mobile phones, purportedly with chargers containing circuits that infringed patents for alleviating electromagnetic interference and current flow problems; although competitor sold infringing circuits to third party, there was no evidence that third party's sales in United States included chargers, let alone chargers that contained infringing circuits. 35 U.S.C.A. § 284.

5 Cases that cite this headnote

[39] **Patents** → Particular fields of invention

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)3Evidence
291k1825Weight and Sufficiency
291k1828Particular Matters
291k1828(2)Particular fields of invention
(Formerly 291k312(6))

Jury's implicit finding of direct infringement, premised on general verdict awarding damages for infringement of patents for alleviating electromagnetic interference and current flow problems in power supplies for electronic devices, was supported by substantial evidence in the form of competitor's stipulation that it made or sold within the United States, or imported into the United States, accused devices worth specified dollar amount. 35 U.S.C.A. § 271.

4 Cases that cite this headnote

[40] **Federal Courts** → Verdict

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)3Presumptions
170Bk3673Verdict
(Formerly 170Bk799)

Where the jury returns a general verdict, court must presume the existence of fact findings implied from the jury's having reached that verdict.

1 Cases that cite this headnote

[41] **Patents** → Infringement or noninfringement
Patents → Profits and damages

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)7Appellate Review

291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(15) Infringement or noninfringement
(Formerly 291k324.55(5), 291k324.55(1))
291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(17) Relief
291k1970(19) Profits and damages
(Formerly 291k324.55(1))

Patent infringement and damages are findings of fact, and Court of Appeals reviews a jury's findings on both issues for substantial evidence. 35 U.S.C.A. §§ 271, 284.

1 Cases that cite this headnote

[42] **Patents** → Profits and damages

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)3 Evidence
291k1821 Admissibility
291k1823 Profits and damages
(Formerly 291k312(2))

Although patent-marking statute precluded patentee's recovery of damages for infringement prior to patentee's notification to competitor of alleged infringement, evidence of pre-notice price erosion was admissible when determining patentee's damages for post-notice infringement; price erosion analysis measured price changes against infringement-free market conditions, starting point for which was date of first infringement. 35 U.S.C.A. §§ 271(a), 284, 287(a).

8 Cases that cite this headnote

[43] **Patents** → Elements, measure, and amount in general

291 Patents
291VII Patent Infringement

291VII(C) Actions
291VII(C)5 Relief
291k1900 Profits
291k1903 Elements, measure, and amount in general
(Formerly 291k318(3))

Lost revenue caused by "price erosion," which is a reduction in the market price of a patented good due to infringement, is a legitimate element of compensatory damages. 35 U.S.C.A. § 284.

5 Cases that cite this headnote

[44] **Patents** → Notice or marking as prerequisite

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1915 Notice or marking as prerequisite
(Formerly 291k319(1))

Where a patentee does not appropriately mark her products, she may not recover damages for infringement occurring before notice to the infringer. 35 U.S.C.A. § 287(a).

9 Cases that cite this headnote

[45] **Patents** → Notice or marking as prerequisite

291 Patents
291VII Patent Infringement
291VII(C) Actions
291VII(C)5 Relief
291k1910 Damages
291k1915 Notice or marking as prerequisite
(Formerly 291k319(1), 291k222)

Patent-marking statute provides a temporal limitation on damages for infringement by precluding recovery for infringement occurring before the infringer was notified of the infringement, but marking statute does not define or redefine acts of infringement. 35 U.S.C.A. §§ 284, 287(a).

7 Cases that cite this headnote

[46] **Patents** → Notice or marking as prerequisite

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1915 Notice or marking as prerequisite
(Formerly 291k319(1))

While patent-marking statute precludes recovery of damages for pre-notice infringement, court must assess damages for post-notice infringement relative to market conditions at the point in time when infringement began. 35 U.S.C.A. §§ 271(a), 284, 287(a).

2 Cases that cite this headnote

[47] **Patents** → Notice or marking as prerequisite

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1915 Notice or marking as prerequisite
(Formerly 291k319(1))

Although patent-marking statute precludes recovery of damages for pre-notice infringement, the infringer's pre-notice infringing activity is part of her whole infringement, and it is the whole of her infringement which court must consider in calculating damages for legally compensable post-notice infringement. 35 U.S.C.A. §§ 271(a), 284, 287(a).

2 Cases that cite this headnote

[48] **Patents** → Elements, measure, and amount in general

Patents → Notice or marking as prerequisite

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1900 Profits
291k1903 Elements, measure, and amount in general
(Formerly 291k318(3))
291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1910 Damages
291k1915 Notice or marking as prerequisite
(Formerly 291k319(1))

Patent-marking statute precludes recovery of damages for pre-notice infringement, but to the extent an infringer's pre-notice infringement erodes the market price of a patented product, that price erosion is relevant in determining for each post-notice act of infringement what the patentee would have made but for the infringement. 35 U.S.C.A. §§ 271(a), 284, 287(a).

7 Cases that cite this headnote

[49] **Patents** → Elements, measure, and amount in general

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C) 5 Relief
291k1900 Profits
291k1903 Elements, measure, and amount in general
(Formerly 291k318(3))

Although patent-marking statute precludes recovery of damages for pre-notice infringement, price erosion analysis relating to damages arising from post-notice infringement must measure price changes against infringement-free market conditions, and thus the proper starting point of such a price erosion analysis is the date of first infringement. 35 U.S.C.A. §§ 271(a), 284, 287(a).

5 Cases that cite this headnote

[50] **Patents** → Time limitation

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 5 Relief
291 k 1910 Damages
291 k 1913 Time limitation
(Formerly 291 k 319 (1))

Patentee preserved its right to an accounting for competitor's post-verdict infringement by requesting in its complaint "money damages sustained as a result of [competitor's] infringement," without temporal limit on damages requested. 35 U.S.C.A. § 284.

2 Cases that cite this headnote

[51] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k 2091 In general; utility
(Formerly 291 k 328 (2))

US Patent 4,638,417. Cited as Prior Art.

3 Cases that cite this headnote

[52] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k 2091 In general; utility
(Formerly 291 k 328 (2))

US Patent 4,811,075. Cited.

[53] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated

291 k 2091 In general; utility
(Formerly 291 k 328 (2))

US Patent 6,107,851, US Patent 6,229,366. Construed.

[54] **Patents** → In general; utility

291 Patents
291 X Patents Enumerated
291 k 2091 In general; utility
(Formerly 291 k 328 (2))

US Patent 6,249,876. Valid.

Attorneys and Law Firms

*1354 Frank E. Scherkenbach, Fish & Richardson P.C., of Boston, MA, argued for plaintiff-cross appellant. With him on the brief were Craig E. Countryman, of San Diego, CA, and Howard G. Pollack and Michael R. Headley, of Redwood City, CA.

Blair M. Jacobs, McDermott Will & Emery LLP, of Washington, DC, argued for defendants-appellants. With him on the brief were Natalia V. Blinkova and David M. DesRosier; Leigh J. Martinson, of Boston, MA. Of counsel was Christina A. Ondrick, of Washington, DC.

Before LOURIE, O'MALLEY, and REYNA, Circuit Judges.

Opinion

REYNA, Circuit Judge.

This is an appeal from a final judgment of the United States District Court for the District of Delaware finding that Fairchild Semiconductor International, Inc. and Fairchild Semiconductor Corporation (collectively, "Fairchild") willfully infringed several valid patents belonging to Power Integrations, Inc. ("Power Integrations"). After two jury trials, a bench trial, and post-trial proceedings including a motion for remittitur,

the district court entered final judgment in favor of Power Integrations and awarded compensatory and enhanced damages in the amount of \$12,866,647.16. Fairchild on appeal asserts that the district court erred in its claim construction, in denying Fairchild's motion for judgment as a matter of law that one of Power Integrations' claimed inventions would have been obvious, in formulating its remitted damages award, and in finding Fairchild's infringement willful. On cross-appeal, Power Integrations argues that it was error for the district court to grant Fairchild's motion for remittitur, thereby reducing the jury's original damages award by eighty-two percent. Power Integrations asserts further error in the district court's exclusion of evidence related to price erosion prior to the date Fairchild was notified of its infringement, and in the district court's denial of Power Integrations' motion for a post-verdict accounting.

For the reasons set out below, we affirm the district court's finding of non-obviousness; we affirm-in-part and reverse-in-part on claim construction; we vacate the district court's order of remittitur and its attendant damages award; we find error in the district court's exclusion of evidence related to pre-notice price erosion and in its refusal to grant Power Integrations a postverdict accounting; we vacate the district court's finding of willful infringement; and we remand to the district court for further proceedings consistent with this opinion.

Procedural Posture

In 2004, Power Integrations sued Fairchild for infringement of four U.S. patents related to power supplies for electronic devices: U.S. Patent Nos. 6,249,876 (filed Nov. 16, 1998) (the '876 Patent); 6,107,851 (filed Aug. 20, 2000) (the '851 Patent); 6,229,366 (filed May 8, 2001) (the '366 Patent); and 4,811,075 (filed Apr. 24, 1987) (the '075 Patent). The patented technology is used in electric chargers for mobile phones.

In 2006, following its claim construction order, the district court bifurcated infringement and damages issues from those relating to validity of the asserted patents. The parties tried the issues before separate juries, and both juries rendered verdicts in favor of Power Integrations.

In the trial on infringement and damages, a first jury found that Fairchild had willfully infringed claim 1 of the '876 Patent, claims 1 and 4 of the '851 Patent, claims 9 and 14 of the '366 Patent, and claims 1 and 5 of the '075 Patent. The jury awarded Power Integrations lost profits

due to lost sales (\$14,981,828), lost profits *1355 due to price erosion (\$1,952,893), future lost profits due to price erosion (\$13,018,379), and a lump sum reasonable royalty (\$4,028,681), for a total damages award of \$33,981,781.

In the trial on validity, a second jury found all asserted claims valid. After the validity trial, the district court denied Fairchild's motion for judgment as a matter of law ("JMOL") that the invention of Power Integrations' '876 Patent would have been obvious to one of ordinary skill in the art.

Fairchild subsequently moved for remittitur, JMOL, or in the alternative, a new trial on damages. Expressing concern over the testimony of Power Integrations' damages expert, the district court granted Fairchild's motion for remittitur and reduced the jury's combined damages award by 82%, resulting in a total award of \$6,116,720.58. On the same day, the district court issued a permanent injunction covering all claims of the asserted patents. The court also granted Fairchild's motion for a new trial on willfulness in view of our decision in *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed.Cir.2007) (en banc).

Fairchild filed an emergency request to stay the injunction pending appeal. In support of its request, Fairchild cited favorable actions taken by the U.S. Patent and Trademark Office ("Patent Office") in the reexaminations of three Power Integrations patents.¹ The district court denied the stay request, Fairchild appealed to this court, and we dismissed for lack of jurisdiction. *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 345 Fed.Appx. 563 (Fed.Cir.2009).

In June 2009, following a bench retrial of the issue of willfulness, the district court concluded in view of *Seagate* that Fairchild's infringement was willful. The district judge who had been presiding over the case retired, and a new judge assumed the bench. In January 2011, the district court reaffirmed its willfulness finding, and pursuant to its authority under 35 U.S.C. § 284, the court granted Power Integrations' motion for enhanced damages. The court awarded Power Integrations enhanced damages for willful infringement by doubling its remitted damages award of \$6,116,720.58, for a total award of \$12,233,441.16, not including interest.

These appeals followed. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

Standards of Review

^[1] ^[2] We review issues of claim construction without deference. See *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed.Cir.1998) (en banc). Whether a claim limitation invokes means-plus-function claiming under 35 U.S.C. § 112, ¶ 6 (now 35 U.S.C. § 112(f)), is an exercise in claim construction which we review without deference. *Inventio AG v. ThyssenKrupp Elevator Ams. Corp.*, 649 F.3d 1350, 1356 (Fed.Cir.2011).

^[3] We review a district court's denial of a JMOL motion under the law of the regional circuit, in this case the Third Circuit. See *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1330 (Fed.Cir.2010) (en banc). The Third Circuit reviews a district court's denial of a JMOL motion without deference. *Rinehimer v. Cemcolift, Inc.*, 292 F.3d 375, 383 (3d Cir.2002).

^[4] ^[5] Obviousness is a question of law based on underlying factual findings. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 427, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007); *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, *1356 676 F.3d 1063, 1068 (Fed.Cir.2012). We review a jury's ultimate conclusions on obviousness without deference, but review the jury's findings of fact for substantial evidence. *LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347, 1353 (Fed.Cir.2001). Objective evidence of secondary considerations of patentability are fact determinations which we review for substantial evidence. *Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc.*, 73 F.3d 1085, 1088 (Fed.Cir.1995).

^[6] ^[7] We review admissibility of evidence under the law of the regional circuit. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1465 (Fed.Cir.1998). The Third Circuit reviews a district court's ruling on admissibility of expert testimony for abuse of discretion. *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 749 (3d Cir.1994). To the extent the district court's ruling turns on an interpretation of a Federal Rule of Evidence, our review is plenary. *DeLuca v. Merrell Dow Pharm.*, 911 F.2d 941, 944 (3d Cir.1990).

^[8] ^[9] We review a district court's decision to set aside a jury's damages award by applying the standard of review applicable in the regional circuit. *Siemens Med. Solutions USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1289 (Fed.Cir.2011). The Third Circuit will not disturb a jury's damages award unless unsupported by substantial evidence, *Thabault v. Chait*, 541 F.3d 512, 532 (3d Cir.2008), or contrary to the limits established by law, *Scott v. Baltimore & O.R. Co.*, 151 F.2d 61, 65 (3d Cir.1945). We consider issues regarding what types of damages are legally compensable in an action for patent

infringement under the law of our own circuit, without deference to the trial court. See *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1544 (Fed.Cir.1995) (en banc).

^[10] We review a district court's decision to grant or withhold a remittitur under the law of the regional circuit. The Third Circuit has held that "[a] remittitur is in order when a trial judge concludes that a jury verdict is 'clearly unsupported' by the evidence and exceeds the amount needed to make the plaintiff whole." *Starceski v. Westinghouse Elec. Corp.*, 54 F.3d 1089, 1100 (3d Cir.1995). The Third Circuit has emphasized that it is not the function of the appellate court to assess what would constitute fair recompense for the injuries sustained by the plaintiff, but rather to ascertain whether the trial judge, weighing all the evidence on damages, "has exercised his considered judgment as to a rational verdict in a judicial manner." *Russell v. Monongahela Ry. Co.*, 262 F.2d 349, 352 (3d Cir.1958). Thus, "[t]he trial judge's decision to grant or withhold a remittitur cannot be disturbed absent a manifest abuse of discretion." *Starceski*, 54 F.3d at 1100; *accord 2660 Woodley Rd. Joint Venture v. ITT Sheraton Corp.*, 369 F.3d 732, 745 (3d Cir.2004) ("We review a grant of remittitur for abuse of discretion.").

^[11] While we review for abuse of discretion the district court's decision to order a remittitur, *Starceski*, 54 F.3d at 1100, we review the amount of the court's remittitur on the basis of whether it exceeds the maximum award supported by the evidence, see *Garrett v. Faust*, 183 F.2d 625, 629 (3d Cir.1950); see also 11 Charles Alan Wright, Arthur R. Miller and Mary Kay Kane, *Federal Practice and Procedure* § 2815, at 159 (2d ed. 1995). We thus consider whether the amount of the district court's remittitur order is supported by substantial evidence.

^[12] ^[13] ^[14] ^[15] The issue of willful infringement has two components, each with a different standard of review. First, the "patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its *1357 actions constituted infringement of a valid patent." *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed.Cir.2007). This first inquiry is a question of law that we review without deference. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1006–07 (Fed.Cir.2012). Second, "the patentee must ... demonstrate that this objectively-defined risk ... was either known or so obvious that it should have been known to the accused infringer." *Seagate*, 497 F.3d at 1371. This second inquiry is a question of fact which we review for substantial evidence. *Bard*, 682 F.3d at 1006.

The Patented Technology

Power Integrations' patented technology is used in power supplies for electronic devices. The '851, '366, and '876 Patents describe techniques for alleviating electromagnetic interference and current flow problems associated with prior art power supplies. The '075 Patent describes a type of transistor useful in high voltage power circuits. Although the patented technologies are applicable generally in the field of electronics, the present case focuses on their use in chargers for mobile phones.

Electrical outlets throughout much of the world, including standard wall outlets in the United States, provide electrical energy by way of an alternating current (AC). The electric current provided by such power outlets is called "alternating" because the direction of current flow reverses periodically. In operation, current flows first from the wall outlet through a power cable, toward the powered device. Flow then reverses, and electric current flows back from the powered device through the power cable, toward the wall outlet. These current flow reversals occur many times per second. An AC power source such as a standard wall outlet accomplishes these current flow reversals by providing a voltage, sometimes called a "power signal," which changes cyclically over time from positive to negative. When the power signal voltage is positive, current tends to flow in one direction; when the power signal voltage is negative, current tends to flow in the opposite direction. As a result of these rapid changes in voltage and current flow, AC power signals continually fluctuate.

Some devices can utilize an AC power signal directly, but most electronic devices must convert the rapidly fluctuating AC power signal to a more stable "direct current" (DC) power signal. A DC power signal does not change over time; rather, it provides a steady, constant voltage, and current tends to flow in only one direction. Electronic devices that require DC rather than AC power often utilize external adapters to convert the AC power from standard wall outlets into suitable DC power. This process of converting AC to DC is known as "rectification." Popular examples of rectifying power supplies are wall-chargers for laptops and mobile phones.

After rectification, most power supplies must adjust the voltage of the rectified DC power signal. This adjustment brings the voltage of the DC power signal within an appropriate operating range for the powered electronic device. Many modern power supplies carry out this voltage adjustment by using semiconductor switches, called transistors, to switch the rectified DC power signal rapidly on and off. This is similar to operating a light switch, which can be turned quickly on and off to

simulate medium light (not fully lit, but not completely dark). By using this rapid on-and-off switching technique, a switching power supply can produce an output power signal that can be used as if it were a steady DC voltage. To fine-tune the voltage of this output DC power signal, the power supply can adjust its "pulse-width," which measures the time the power supply spends in the "on" switching stage relative to the "off" stage. More switching time spent in the "on" stage transfers more voltage to the output DC power signal. This voltage-adjustment technique is called pulse-width modulation (PWM), and it is the technology implicated in this appeal.

A. The '851 And '366 Patents

There are two notable problems with pulse-width modulated (PWM) power converters: electromagnetic interference (EMI) and inrush current. EMI results when the rapid switching in a PWM power supply generates a high frequency signal that interferes with other electronic devices. The power supply can radiate this high frequency signal, thereby affecting nearby devices; it can also inject the high frequency signal back into the power grid, thereby affecting other devices on the grid.

PWM power supplies are also susceptible to large inrush currents. When a PWM power supply first turns on, current rushes in and charges the internal capacitors. This initial inrush current is much higher than the current utilized during normal, steady-state operation. Inrush current stresses the components of the power supply and decreases its useful life. Substituting components capable of handling a large inrush current can add significantly to the power supply's cost.

To address EMI and inrush current, the '851 Patent and its divisional, the '366 Patent, disclose improved integrated circuitry for PWM power supplies. The improved circuitry provides "frequency-jittering" functionality for reducing EMI, and "soft-start" functionality for reducing inrush current.

"Frequency-jittering" is a technique that varies the frequency of the on-off switching in a PWM power supply. This frequency variation disperses generated EMI by spreading it out over a range of frequencies. In a PWM power supply, a periodically repeating signal known as an oscillating drive signal drives the power supply's rapid on-off switching. The '851 Patent discloses a technique for varying the frequency of a PWM power supply's oscillating drive signal by using an independent

“frequency variation signal.” By changing the frequency variation signal, the PWM power supply can vary the frequency of its oscillating drive signal. This frequency variation in the oscillating drive signal spreads generated EMI over a spectrum of frequencies, thereby reducing interference with other devices.

“Soft-start” circuitry attempts to reduce inrush current that stresses internal components of a PWM power supply. The ‘851 Patent describes an improvement over prior art soft-start circuits, which in some cases suffer from brief initial periods of large current flow. To alleviate this problem, the ‘851 Patent discloses a PWM power supply with soft-start circuitry driven by the same independent frequency variation signal used for frequency-jittering. Tying soft-start circuitry to the independent frequency variation signal allows soft-start functionality to operate independently of the electrical characteristics of a powered device. It also eliminates the brief initial inrush current suffered by prior art soft-start circuits.

B. The ‘876 Patent

The ‘876 Patent discloses a “frequency-jittering” circuit that provides frequency-jittering functionality in a manner distinct from the ‘851 and ‘366 Patents. Unlike the ‘851 and ‘366 Patents, the circuit of the ‘876 Patent does not provide “soft-start” functionality. Representative Figure 1 of the ‘876 Patent is shown below:

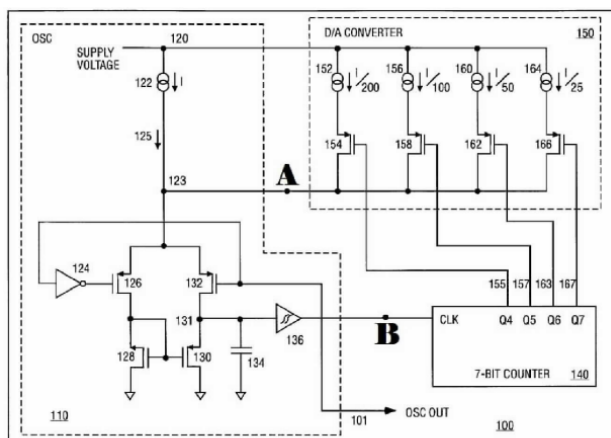


FIG. 1

*1359 ‘876 Patent fig. 1 (labels “A” and “B” added). The circuit of the ‘876 Patent uses an analog “control signal” (designated in Fig. 1 by “A”) to control the frequency of the power supply’s oscillating drive signal (“B”). This analog “control signal” is similar to the frequency

variation signal of the ‘851 and ‘366 Patents, which also controls oscillating drive signal frequency. In the circuit depicted in Fig. 1, the analog “control signal” (“A”) periodically changes, thus changing the frequency of the oscillating drive signal (“B”). These periodic changes in the drive signal’s frequency help dissipate generated EMI by spreading it over a range of frequencies.

At the heart of the ‘876 Patent is the process by which the analog “control signal” changes, thus varying the frequency of the oscillating drive signal. Generally, this process works as follows: A digital counter (box 140) monitors the power supply’s oscillating drive signal (“B”), which repeats periodically. As the oscillating drive signal repeats, the digital counter counts the drive signal’s repetitions. After the count reaches a maximum value, the digital counter resets to zero. Essentially, the digital counter keeps a tally of how many times the oscillating drive signal repeats. A digital-to-analog converter (dotted area 150) reads the outputs of the digital counter (signal lines 155, 157, 163, and 167). Based on the counter’s outputs, the digital-to-analog converter generates an analog signal proportional to the counter’s tally. This analog signal is the analog “control signal” (“A”) that controls the frequency of the oscillating drive signal. An oscillator (dotted area 110) generates the oscillating drive signal (“B”) based on the analog control signal (“A”).

As the digital counter counts the cycles of the power supply’s oscillating drive signal, the outputs of the digital counter change, thereby changing the analog control signal. The analog control signal, in turn, changes the frequency of the oscillating drive signal. Each time the digital counter increments, the frequency of the oscillating drive signal changes with it. The end result is that the frequency of the power supply’s oscillating drive signal—and thus the frequency of its generated EMI—steps through an ordered set of frequencies. This frequency stepping repeats when the counter resets to zero. Because the frequency of the power supply’s generated *1360 EMI is continually changing, EMI is spread out over a wide range of frequencies and interference with other devices is reduced.

C. The ‘075 Patent

The ‘075 Patent, now expired, discloses a type of metal-oxide semiconductor field-effect transistor (MOSFET) for use in high voltage electronic devices such as power supplies. The disclosed transistor provides improved ability to incorporate high and low voltage circuitry on a single chip. Power Integrations notes that

the technology of the '075 Patent served as the cornerstone for the company's founding. Fairchild does not raise any claim construction or validity issues with regard to the '075 Patent. We therefore do not describe the technology in depth.

Claim Construction

The district court conducted a *Markman* hearing and construed various terms of the claims in the asserted patents. On appeal, Fairchild argues that the district court erred in its construction of two terms in particular: "frequency variation signal" and "soft start circuit," both of which appear in the claims of the '851 and '366 Patents.

^[16] ^[17] ^[18] Claim construction begins with the language of the claim. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed.Cir.2005) (en banc) ("[T]he claims are of primary importance, in the effort to ascertain precisely what it is that is patented."). We presume that the terms in the claim mean what they say. *Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1370 (Fed.Cir.2002). We interpret the claim's words "in light of the intrinsic evidence of record, including the written description, the drawings, and the prosecution history." *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed.Cir.2002). Where the intrinsic record is ambiguous, and when necessary, we have authorized district courts to rely on extrinsic evidence, which "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips*, 415 F.3d at 1317 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996)).

D. Frequency Variation Signal

The district court construed the term "frequency variation signal" in the '851 and '366 Patents as "an internal signal that cyclically varies in magnitude during a fixed period of time and is used to modulate the frequency of the oscillation signal within a predetermined frequency range."

On appeal, Fairchild argues that the district court erred by improperly reading features of the preferred embodiments into the claims. Specifically, Fairchild argues that the claimed "frequency variation signal" is not limited to an

internal signal (the "internal signal" limitation) and that "frequency variation signal" is not limited to a signal that varies cyclically in magnitude during a fixed period of time (the "cyclically varies" limitation). These limitations, Fairchild insists, appear in the patents' preferred embodiments and not in the claims, and because the district court's construction incorporates both limitations, that construction is incorrect as a matter of law. Fairchild argues that we should not look to the patent specification to define the disputed term "frequency variation signal" because the term has a plain and ordinary meaning. Fairchild would have us construe "frequency variation signal" more broadly as "a signal that is used to vary the frequency of the oscillation signal."

*1361 Power Integrations argues that the district court correctly construed "frequency variation signal." Power Integrations argues that "frequency variation signal" does not have a plain and ordinary meaning. Because we must consider claim terms in light of the entire patent, Power Integrations insists that we must look to the specification to define "frequency variation signal." Power Integrations argues that, although the claims do not explicitly recite the "internal signal" and "cyclically varies" limitations, these limitations are necessary and inherent components of the term "frequency variation signal." Power Integrations further argues that failing to include the "internal signal" limitation would cause the claims to read on the prior art, and would likewise ignore a fundamental aspect of the invention's improvement.

With respect to the "cyclically varies" limitation, Power Integrations maintains that all examples and descriptions in the patents limit the "frequency variation signal" to a "signal that cyclically varies in magnitude during a fixed period of time." Without this limitation, Power Integrations argues, the invention would experience the same problem with "unpredictably, externally influenced variations the patent set out to solve." Power Integrations urges that the district court correctly construed the claims to uphold their validity, as required by our precedent.

^[19] ^[20] ^[21] In construing a claim term, we look to the words of the claim itself. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996). If the claim term has a plain and ordinary meaning, our inquiry ends. *Id.* If, however, the claim term does not have an ordinary meaning, and its meaning is not clear from a plain reading of the claim, "we turn to the remaining intrinsic evidence, including the written description, to aid in our construction of that term." *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1326 (Fed.Cir.2001). As we have said, "the specification is always highly relevant to the claim construction analysis. Usually, it is

dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics*, 90 F.3d at 1582. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed.Cir.1998).

With these principles in mind, we turn to the claims of the ’851 and ’366 Patents. Claim 1 of the ’851 Patent recites both

a frequency variation circuit that provides a *frequency variation signal*
and

an oscillator that provides an oscillation signal having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said *frequency variation signal*.

’851 Patent col. 12 ll. 22–27 (emphases added). Similarly, claim 14 of the ’366 Patent includes

a frequency variation circuit that provides a *frequency variation signal* and wherein said maximum time period varies according to a magnitude of said *frequency variation signal*.

’366 Patent col. 14 ll. 14–17 (emphases added). Claims 1 and 14 do not further define “frequency variation signal.”

Although Fairchild argues that “frequency variation signal” has a plain and ordinary meaning, an expert for Power Integrations, Mr. Blauschild, testified that “[t]he term ‘frequency variation signal,’ recited in the ’851 Patent, is not a term of art.” “Nor would this term have had,” Mr. Blauschild continued, “a plain and ordinary meaning to one of skill in the art at the time of the invention.” J.A. 359. Turning *1362 to the specification, Mr. Blauschild opined that “the specification of the ’851 Patent clearly defines such a signal as an internal signal that cyclically varies in magnitude during a fixed period of time.” *Id.* Fairchild offers no evidence to contradict the testimony of Mr. Blauschild other than its own assertion that “frequency variation signal” has a plain and ordinary meaning.

¹²²¹ We are not persuaded that the claims inform a plain and ordinary meaning of the term “frequency variation signal,” nor do we agree with Fairchild that we need only a dictionary to discern the meaning of “frequency variation signal.” Unless the inventor intended a term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record, it is improper to read the term to encompass a broader definition simply because it may be found in a dictionary,

or other extrinsic source. *Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1145 (Fed.Cir.2005). In any event, our inquiry here starts with the intrinsic record, including the specification, and not with a dictionary definition of the disputed term. *Phillips*, 415 F.3d at 1321 (“The problem is that if the district court starts with the broad dictionary definition in every case and fails to fully appreciate how the specification implicitly limits that definition, the error will systematically cause the construction of the claim to be unduly expansive.”).

Here, the specification of the ’851 Patent describes the frequency variation signal:

Although the presently preferred frequency variation signal 400 is a triangular waveform, alternate frequency variation signals such as *ramp signals*, *counter output signals* or *other signals that vary in magnitude during a fixed period of time may be utilized as the frequency variation signal*.

’851 Patent col. 6 ll. 34–38 (emphases added). The patent thus contemplates frequency variation signals other than the preferred embodiment’s triangular waveform. The specification describes these alternatives as “other signals that vary in magnitude during a fixed period of time.” *Id.* col. 6 ll. 36–37. Specifically limiting the expansive term “other signals” to “signals that vary in magnitude during a fixed period of time” suggests that the patentee contemplated only frequency variation signals having a periodic waveform. The intrinsic record thus clearly indicates the patentee’s precise conception and formulation, which here must control our construction. See *Renishaw*, 158 F.3d at 1250 (“Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.”).

We also note that the specification, in describing the frequency variation signal, lists several specific examples followed by the general phrase “or other signals....” When a general phrase follows a list of specific items, this can be a good indication that the general phrase refers to additional items of the same kind. Here, the specification lists a preferred “triangular waveform” along with two alternatives, “ramp signals” and “counter output signals.” All of these signals have periodic waveforms. ’851 Patent col. 6 ll. 35–36. Thus, in context, the general phrase “other signals” suggests other *periodic* signals. This implicit limitation is confirmed by the words that follow: “other signals *that vary in magnitude during a fixed period of time*.” *Id.* col. 6 ll. 36–37 (emphasis added). We thus agree with the district court that the proper construction of “frequency variation signal” includes the “cyclically varies” limitation.

*1363 With regard to the “internal signal” limitation, the specification indicates that the term “frequency variation signal” refers to an internal signal. In two separate places, the specification provides,

That is, the switching frequency of the pulse width modulated switch 262 varies according to an *internal frequency variation signal*. This has an advantage over the frequency jitter operation of [the prior art circuit of] FIG. 1 *in that the frequency range of the presently preferred pulse width modulated switch 262 is known and fixed, and is not subject to the line voltage or load magnitude variations.*

'851 Patent col. 6 ll. 12–18, col. 11 ll. 44–49 (emphases added). This description confirms that the patentee contemplated a fixed-range, periodic frequency variation signal, and it further indicates that the internal character of the frequency variation signal is essential to the invention. It is the internal character of the signal that makes the frequency-jittering functionality “not subject to the line voltage or load magnitude variations.” *Id.* col. 6 ll. 17–18, col. 11 ll. 48–49. As the specification reflects, the patentee did not employ the term “frequency variation signal” to refer to external signals, nor did the patentee consider external frequency variation signals as part of the invention. In fact, the patentee sought to alleviate problems with the prior art’s external frequency variation techniques.

^[23] For these reasons, the district court properly limited the claimed “frequency variation signal” to an internal, periodic signal. We thus conclude that the district court correctly construed “frequency variation signal” as “an internal signal that cyclically varies in magnitude during a fixed period of time and is used to modulate the frequency of the oscillation signal within a predetermined frequency range.”

E. Soft Start Circuit

The district court construed the term “soft start circuit” in the '851 and '366 Patents as means-plus-function limitations under paragraph 6 of 35 U.S.C. § 112 (now 35 U.S.C. § 112(f)). In the district court’s view, an ordinarily skilled artisan would not “know the precise structures for a soft start circuit, because the function of a soft start circuit can be achieved in a variety of ways making it unclear what the specific structures are for performing the recited functions.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 422 F.Supp.2d 446, 459 (D.Del.2006). Thus, the district court concluded that “the

term ‘soft start circuit’ should be construed in accordance with Section 112, ¶ 6” and limited to the structure described in the specification and its equivalents. *Id.* at 460.

On appeal, Fairchild argues that the district court incorrectly construed the “soft start circuit” limitations in the '851 and '366 Patents as means-plus-function limitations. Fairchild contends that these limitations do not include the word “means,” which creates a strong presumption that mean-plus-function claiming does not apply. Rather, Fairchild argues, the claims disclose sufficient structure to remove the “soft start circuit” limitations from the reach of means-plus-function claiming.

Power Integrations seeks an affirmance of the district court’s construction. Power Integrations argues that the term “soft start circuit,” does not suggest sufficiently definite structure to the skilled artisan. Power Integrations would have us affirm the district court’s construction and limit the term “soft start circuit” to the structures described in the specifications of the '851 and '366 Patents.

^[24] ^[25] ^[26] Means-plus-function limitations permit a patentee to claim an element of her invention in terms of the *1364 element’s function, without in the claim itself reciting corresponding structure:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6.² If a claim term does not use the word “means,” we presume that means-plus-function claiming does not apply. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed.Cir.2002). If, however, the claim term recites a function *without reciting sufficient structure* for performing that function, the presumption falls and means-plus-function claiming applies. *See, e.g., Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed.Cir.2000). We assess whether a claim limitation recites sufficient structure to avoid means-plus-function claiming from the vantage point of an ordinarily skilled artisan. *See Inventio*, 649 F.3d at 1357; *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed.Cir.2003). To this end, “considering intrinsic and extrinsic evidence is usually helpful [in determining whether] a claim limitation is so devoid of structure that the drafter constructively engaged in means-plus-function claiming.” *Inventio*, 649 F.3d at 1357. With respect to

intrinsic evidence, a patent’s specification may inform the skilled artisan’s understanding of the structure required by a claim limitation.

We have previously held on several occasions that the term “circuit” connotes structure. See *MIT v. Abacus Software*, 462 F.3d 1344, 1355 (Fed.Cir.2006) (“[D]ictionary definitions establish that the term ‘circuitry,’ by itself, connotes structure.”); see also *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320–21 (Fed.Cir.2004) (holding that the term circuit is not a means-plus-function limitation when the patent provides “a recitation of the respective circuit’s operation in sufficient detail to suggest structure to persons of ordinary skill in the art”); *Apex*, 325 F.3d at 1373 (“[T]he term ‘circuit’ with an appropriate identifier such as ‘interface,’ ‘programming’ and ‘logic,’ certainly identifies some structural meaning to one of ordinary skill in the art.”). In *Abacus*, we said,

The claim language here too does not merely describe a circuit; it adds further structure by describing the operation of the circuit. The circuit’s input is “appearance signals” produced by the scanner; its objective is to “interactively introduce[e] [sic] aesthetically desired alterations into said appearance signals”; and its output is “modified appearance signals.” This description of the operation of the circuit is sufficient to avoid 112 ¶ 6.

462 F.3d at 1356 (citation omitted).

¹²⁷¹ *Abacus* establishes that in determining whether the word “circuit” invokes means-plus-function claiming, the pivotal issue is “whether the [circuit limitation] as properly construed recites *sufficiently definite* structure.” *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 704 (Fed.Cir.1998) (emphasis added). A description of the circuit’s operation may provide sufficiently definite structure, *Abacus*, 462 F.3d at 1356, as can certain “adjectival qualifications,” *Apex*, 325 F.3d at 1374 (“interface circuit”). Nevertheless, not just any adjectival qualification *1365 or functional language will suffice. See *Abacus*, 462 F.3d at 1362–63 (Michel, C.J., dissenting). The proper inquiry is whether the claim limitation itself, when read in light of the specification, connotes to the ordinarily skilled artisan sufficiently definite structure for performing the identified functions. *Apex*, 325 F.3d at 1373.

1. Claim 4 of the ‘851 Patent

Turning to the claims at issue, claim 4 of the ‘851 Patent

recites a “soft start circuit” that performs a function:

a *soft start circuit* that provides a signal instructing said drive circuit to discontinue said drive signal when said magnitude of said oscillation signal is greater than a magnitude of said frequency variation signal.

’851 Patent col. 12 ll. 46–49 (emphasis added). Although the claim includes a functional description of the “soft start circuit,” the claim does not include the word “means.” Further, the claimed “soft start circuit” performs a straightforward function when a simple test is met: it “provides a signal” that cuts off the drive signal “when said magnitude of said oscillation signal is greater than a magnitude of said frequency variation signal.” This test is nothing more than a comparison of the magnitudes of two signals. The end result is simple: if the comparison is met, an “off” signal is provided. The word “circuit” in combination with such a clear and unambiguous description of the circuit’s operation weighs heavily in favor finding sufficient structure to avoid means-plus-function claiming.

¹²⁸¹ The district court expressed concern that an ordinarily skilled artisan would not “know the precise structures for a soft start circuit, because the function of a soft start circuit can be achieved in a variety of ways.” *Power Integrations*, 422 F.Supp.2d at 459. Yet, we require only that the claim term be used in common parlance or by ordinarily skilled artisans to designate *sufficiently definite* structure, “even if the term covers a broad class of structures.” *Lighting World*, 382 F.3d at 1359–60. Here, as the district court pointed out, a variety of structures can be used to provide the claimed function. Nevertheless, viewed in the context of the claimed invention, the function recited is sufficiently clear, and definitely described, to suggest to the ordinarily skilled artisan a defined class of structures. As in *Abacus*, we have an input to the circuit (the oscillation and frequency variation signals), a straightforward function (comparing of the magnitudes of these signals), and an output (the signal provided to the drive circuit based on the comparison). This is sufficient structure in the context of the claimed invention to avoid the ambit of means-plus-function claiming.

¹²⁹¹ The “soft start circuit” limitation of claim 4 of the ‘851 Patent, therefore, recites sufficient structure to avoid means-plus-function claiming. The district court erred in construing this term as a means-plus-function limitation under § 112, ¶ 6.

2. Claims 9 and 14 of the ‘366 Patent

^[30] We turn next to claims 9 and 14 of the '366 Patent. Claim 9 also includes a “soft start circuit”:

a *soft start circuit* that provides a signal instructing said drive circuit to disable said drive signal during at least a portion of said maximum time period.

'366 Patent col. 13 ll. 33–35 (emphasis added). Claim 14 depends from claim 9 and is therefore subject to the same limitation. This “soft start circuit” in the '366 patent, like the soft start circuit in claim 4 of the '851 Patent, provides a signal that cuts off the drive signal. The claim further informs us that the soft start circuit provides the cutoff signal “during at least a portion of said maximum time period.”

*1366 While we agree that this functional description is less illuminating than that recited in claim 4 of the '851 patent, we find that it suggests sufficient structure to an ordinarily skilled artisan. Power Integrations conceded that a skilled artisan would understand the claim limitation as referring to “various soft start circuit structures [which] accomplish the functions recited in the patent claims....” J.A. 358. As such, an ordinarily skilled artisan reading the claim limitation in the context of the claimed invention, and in light of the specification, would understand that the limitation connotes “sufficiently definite structure for performing the identified functions.” *Apex*, 325 F.3d at 1373.

Having concluded our review of claim construction, we reverse the district court’s construction of the “soft start circuit” limitations in claim 4 of the '851 Patent and in claims 9 and 14 of the '366 patent. On remand, the district court shall construe those claims according to our instructions and assess what effects, if any, the new constructions have on the validity of those claims and on Fairchild’s infringement thereof. If the court determines that its constructions raise new, material issues of validity or infringement, the court shall determine whether to order a new trial. The court shall determine whether any such new, material issues are “distinct and separable” such that a new trial limited to those issues would not unduly prejudice either party. *Cf. Gasoline Prods. Co. v. Champlin Ref. Co.*, 283 U.S. 494, 500, 51 S.Ct. 513, 75 L.Ed. 1188 (1931). If, in its discretion, the district court finds that any such new, material issues may be tried separately without prejudice, the court may limit any new trial accordingly. The court should consider the effects of any amendments made in reexamination.

Obviousness

^[31] At trial, Fairchild argued that claim 1 of the '876 Patent would have been obvious in view of the prior art, which included U.S. Patent No. 4,638,417 (filed Jan. 20, 1987) (“Martin”). The jury returned a verdict of nonobviousness, and the district court denied Fairchild’s motion for judgment as a matter of law (JMOL). Fairchild appeals the district court’s denial of its JMOL motion, and asserts that claim 1 of the '876 Patent would have been obvious in view of Martin.

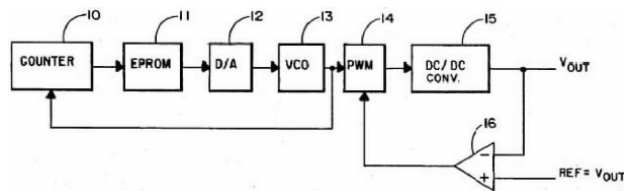
The parties agree that the salient difference between Martin and the '876 Patent is Martin’s inclusion of an EPROM memory. Fairchild contends, however, that Martin’s EPROM memory is not related to frequency-jittering and is only necessary to mask the signature of the power supply. Fairchild thus argues that removing the EPROM would have been obvious if signature masking was not required. Because frequency-jittering is desirable independent of signature masking, Fairchild argues that the invention of the '876 Patent would have been obvious in view of Martin.

Power Integrations counters that nothing in the prior art suggests that Martin’s EPROM “could or should be removed.” Appellee’s Br. 65. Power Integrations directs our attention to the many prior art references considered by Fairchild’s expert, who by his own admission failed to uncover a single reference lacking Martin’s EPROM memory. Power Integrations also cites evidence of secondary considerations of non-obviousness. The evidence of secondary considerations, Power Integrations argues, is sufficient to uphold the jury’s verdict that the '876 Patent would not have been obvious.

Martin teaches “spread spectrum techniques” that operate in a manner similar to the “frequency-jittering” functionality of Power Integrations’ '876 Patent. Martin’s *1367 spread spectrum techniques, like the frequency-jittering of the '876 Patent, reduce generated EMI by spreading it over a range of frequencies. Martin discloses

[a] power density spectrum controller circuit which incorporates a programming element in conjunction with a voltage controlled oscillator and which uses spread spectrum techniques to provide a relatively clean output signal having little or no ripple, little or no noise and little or no signature while having a minimum output filtering requirement.

Martin, at [57] (abstract). Martin’s sole figure shows the general layout of the disclosed power circuit:



A voltage controlled oscillator (VCO) (13) produces an oscillating signal which drives a pulse width modulator (PWM) (14). The VCO also feeds the oscillating drive signal back to a counter (10), which counts at a rate dependent on the oscillating drive signal's frequency. The output of the counter is connected to a memory device, EPROM (11), which stores a pseudo-random code in digital form. The counter output causes the EPROM to "selectively step[] ... through its addressing routine in order to select the contents of a particular address." Martin col. 2 ll. 30–32. The digital output of the EPROM serves as input to a digital-to-analog converter (D/A) (12), which converts the digital output to an analog signal. This analog signal, in turn, controls the frequency of the oscillating drive signal produced by the VCO. The result is that the frequency of Martin's oscillating drive signal steps through a pseudo-random set of discrete frequency values, spreading out the power circuit's generated EMI and limiting its observable signature.³ Martin refers to this as "spread spectrum" technology.

Martin's "spread spectrum" technology operates in essentially the same manner as the frequency-jittering in the '876 Patent, with the exception that the '876 Patent does not use an EPROM memory. Martin, on the other hand, always includes an EPROM memory between the counter and digital-to-analog converter (D/A). Martin does not teach removing the EPROM memory as in the '876 Patent, nor does Martin suggest that it would be feasible to do so. Martin's sole figure indicates that the EPROM is just as integral as the circuit's other components. Nevertheless, on its face, Martin suggests to the ordinarily skilled artisan that the purpose of the EPROM is to mask the power circuit's signature, not to reduce EMI through frequency-jittering.

Martin's "spread spectrum" functionality arises from periodically changing the frequency of the oscillating drive signal. The cycles of the oscillating drive signal increment a counter, and changes to the counter's *1368 value cause changes in the frequency of the oscillating drive signal. This is the same principle disclosed in Power Integrations' '876 Patent. Although Martin teaches, without exception, an EPROM memory between the counter and D/A, the ordinarily skilled artisan would understand that the EPROM is necessary only for signature masking. Essentially, Martin's EPROM converts ordinary frequency-jittering, as in the '876

Patent, to "masked" frequency-jittering. We thus agree with Fairchild that an ordinarily skilled artisan would have understood that Martin's EPROM was used for signature masking and not for frequency-jittering.⁴

^[32] Our inquiry does not end here, however, and we next turn to objective considerations, which we sometimes refer to as "secondary considerations," as essential components of our obviousness analysis. *In re Cyclobenzaprine*, 676 F.3d at 1076–79. Objective evidence of nonobviousness can include copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention. *In re Rouffet*, 149 F.3d 1350, 1355 (Fed.Cir.1998) (collecting cases). These objective considerations can protect against the prejudice of hindsight bias, which often overlooks that "[t]he genius of invention is often a combination of known elements which in hindsight seems preordained." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed.Cir.2001).

The record here is replete with testimony and other evidence demonstrating that Power Integrations' patented technology was far less obvious than Martin on its face suggests. Power Integrations offered testimony that Martin's EPROM adds expense and imposes design constraints, a good indication that removing the EPROM provided otherwise unexpected benefits. Another witness testified that, because of its components, Martin's circuit cannot be integrated on a single chip. Dr. Horowitz, Fairchild's obviousness expert, testified that he found approximately "fifty pieces of prior art," which he "filtered down to seven." When asked at trial whether "each and every one of those [seven] references ... included [EP]ROMs," Dr. Horowitz responded, "Of course." More than 11 years passed between Martin's 1987 issuance and Power Integrations' filing of the '876 Patent in 1998. Yet no one during those 11 years tapped Martin's EPROM as a candidate for removal. One expert, who previously worked for Philips Electronics, testified that no one in the industry, including Philips, was able to come up with the patented invention.

Power Integrations also provided evidence of commercial success of the '876 Patent. Various witnesses testified to the overwhelming success of the patented products, and they uniformly attributed this success to the patented features. Power Integrations touted the patented features in its advertising and marketing materials, as did Fairchild. One of Fairchild's data sheets, for example, exclaims in bold, "Low EMI through Frequency

modulation!” A Fairchild engineer testified that Fairchild added “frequency scaling” functionality because it was “more effective” to reduce EMI and “because it was required by the customers.” Power Integrations has received a number of *1369 awards for its innovations. It characterizes its invention as collapsing customers’ demands “into a sexy power supply, something small.”

Significantly, Fairchild competed with Power Integrations by reverse engineering and copying of Power Integrations’ products. One Fairchild engineer testified to “looking at the circuit” of the [’876 Patent](#) while developing the accused products. He testified that Fairchild obtained Power Integrations’ products and datasheets for “benchmarking,” which he said is “the same” as reverse engineering. Internal documents indicate that Fairchild kept track of at least some of its efforts to reverse engineer Power Integrations’ products. The record indicates that Fairchild fostered a corporate culture of copying, which was not limited to the [’876 Patent](#).

Considering *Martin* in light of the evidence in the record, the jury in the validity trial returned a general verdict that claim 1 of the [’876 Patent](#) would not have been obvious. Although the ultimate conclusion of obviousness is an issue of law, we must “presume that the jury resolved the underlying factual disputes in favor of the verdict winner and leave those presumed findings undisturbed if they are supported by substantial evidence.” *Starceski v. Westinghouse Elec. Corp.*, 54 F.3d 1089, 1100 (3d Cir.1995). Objective evidence of secondary considerations is a factual dispute underlying obviousness. *Para-Ordnance*, 73 F.3d at 1088. We are thus bound to assume that the jury resolved the evidence of secondary considerations in favor of Power Integrations.

Having reviewed the record, we find substantial evidence of objective considerations of non-obviousness to support the jury’s conclusion that claim 1 of Power Integrations’ [’876 Patent](#) would not have been obvious to the ordinarily skilled artisan. Consequently, the district court was correct to deny Fairchild’s motion for judgment as a matter of law.

Damages

The district court bifurcated Power Integrations’ infringement suit into two jury trials: the first addressing issues of infringement and damages, including willfulness, and the second addressing validity of Power Integrations’ patents. Before the trial on infringement and

damages, the parties agreed to a stipulation that Fairchild made or sold within the United States, or imported into the United States, a number of accused devices having a total value of \$765,724. At trial, counsel for Power Integrations read this stipulation into evidence prior to testimony of Power Integrations’ damages expert. Ultimately, the jury found that Fairchild had willfully infringed all asserted patents and awarded past lost profits due to lost sales (\$14,981,828) and price erosion (\$1,952,893), future lost profits due to price erosion (\$13,018,379), and a lump sum reasonable royalty (\$4,028,681), for a total damages award of \$33,981,781. In the trial on validity, the jury found all asserted claims valid.

After the trial on infringement and damages, Fairchild moved for remittitur, JMOL, or in the alternative, a new trial on damages. In its motion, Fairchild contended that the jury’s damages award was contrary to law and unsupported by evidence. Specifically, Fairchild asserted that the jury’s award was based on worldwide sales and therefore improperly rooted in Fairchild’s extraterritorial use of the patented inventions.

The district court agreed with Fairchild and ruled that the total amount of the jury’s damages award was contrary to law. The court nevertheless found that, because the jury heard evidence involving third-party sales in the United States, a portion of the award was supportable and appropriate under a theory of infringement by *1370 inducement. The court noted that Power Integrations had presented an inducement theory at trial, and pointed to evidence of Fairchild’s intent to cause infringement in the United States. Based on this theory of inducement, the district court granted Fairchild’s motion for remittitur and reduced the jury’s damages award by 82%. The remaining 18%, the court said, represented U.S. sales for which Fairchild was liable by way of inducement. The court thus remitted the jury’s original \$33 million award by 82% resulting in a total award to Power Integrations of \$6,116,720.58.

Concurrent with its order of remittitur, the district court issued a permanent injunction covering all asserted patent claims, and granted Fairchild’s motion for a new trial on willfulness given this court’s then-recent decision in *Seagate*, 497 F.3d 1360. Following a bench retrial of the willfulness issue held during June 2009, the district court found that Fairchild’s infringement was willful in view of *Seagate*. In January 2011, the district court awarded Power Integrations enhanced damages for willful infringement by doubling the remitted damages award of \$6,116,720.58, for a total award of \$12,233,441.16, not including interest.

In reaching its determination of damages, the district court made two threshold decisions. First, the district court found that the jury's total damages award of over 33 million dollars was contrary to law. Second, the district court granted Fairchild's motion for remittitur and reduced the worldwide damages award by 82% based on a theory of induced infringement.

F. Jury Award

On cross-appeal, Power Integrations asserts error in the district court's determination that the jury's original damages award was contrary to law. Accordingly, Power Integrations asks us to reinstate the jury's original award as supported by both law and evidence.

In response, Fairchild makes two separate arguments. First, Fairchild argues that the district court correctly determined that the jury's damages award was based on worldwide sales and thus contrary to law. Second, Fairchild argues that in formulating its award the jury relied on inadmissible expert testimony.

We first consider whether the jury's original award has a valid basis in law.

1. Worldwide Sales

^[33] Power Integrations argues that the jury's original award of worldwide damages was legally appropriate. Specifically, Power Integrations argues that it was foreseeable that Fairchild's infringement in the United States would cause Power Integrations to lose sales in foreign markets. Thus, Power Integrations argues, the law supports an award of damages for the lost foreign sales which Power Integrations would have made but for Fairchild's domestic infringement.

As legal authority for its position, Power Integrations recites established law that once a patentee demonstrates an underlying act of domestic infringement, the patentee is entitled to receive full compensation for "any damages" suffered as a result of the infringement.⁵ *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 654–55, 103 S.Ct. 2058, 76 L.Ed.2d 211 (1983). According to Power Integrations, this principle of "full compensation" has no inherent, per se geographical limits. Power Integrations cites this court's decision in *Rite-Hite*, where we

explained that "[i]f a particular injury was or should have been reasonably foreseeable by an infringing competitor in the relevant market, broadly defined, that injury is generally compensable absent a persuasive reason to the contrary," 56 F.3d at 1546, and urges us here to incorporate Fairchild's foreign sales as part of "the relevant market."

^[34] ^[35] Power Integrations' argument that the broad principles of "full compensation," extend to cover Fairchild's worldwide sales is not persuasive. It is axiomatic that U.S. patent law does not operate extraterritorially to prohibit infringement abroad. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 531, 92 S.Ct. 1700, 32 L.Ed.2d 273 (1972), *superseded by statute*, Patent Law Amendments Acts of 1984, Pub. L. No. 98–622, 98 Stat. 3383 (codified at 35 U.S.C. § 271(f)), *as recognized in Microsoft Corp. v. AT & T Corp.*, 550 U.S. 437, 127 S.Ct. 1746, 167 L.Ed.2d 737 (2007); *see also Brown v. Duchesne*, 60 U.S. (19 How.) 183, 195, 15 L.Ed. 595 (1856) ("Our patent system makes no claim to extraterritorial effect; these acts of Congress do not, and were not intended to, operate beyond the limits of the United States...." (internal quotation marks omitted)). Even indirect infringement, which can encompass conduct occurring elsewhere, *see Merial Ltd. v. Cipla Ltd.*, 681 F.3d 1283, 1302–03 (Fed.Cir.2012), requires underlying direct infringement in the United States, *Deepsouth*, 406 U.S. at 531, 92 S.Ct. 1700. Our patent laws allow specifically "damages adequate to compensate for the infringement." 35 U.S.C. § 284 (emphasis added). They do not thereby provide compensation for a defendant's foreign exploitation of a patented invention, which is not infringement at all. *Brown*, 60 U.S. at 195 ("And the use of it outside of the jurisdiction of the United States is not an infringement of his rights, and he has no claim to any compensation for the profit or advantage the party may derive from it.").

Power Integrations' "foreseeability" theory of worldwide damages sets the presumption against extraterritoriality in interesting juxtaposition with the principle of full compensation. Nevertheless, Power Integrations' argument is not novel, and in the end, it is not persuasive. Regardless of how the argument is framed under the facts of this case, the underlying question here remains whether Power Integrations is entitled to compensatory damages for injury caused by infringing activity that occurred outside the territory of the United States. The answer is no.

^[36] Power Integrations is incorrect that, having established one or more acts of direct infringement in the United States, it may recover damages for Fairchild's worldwide

sales of the patented invention because those foreign sales were the direct, foreseeable result of Fairchild's domestic infringement. Power Integrations has not cited any case law that supports an award of damages for sales consummated in foreign markets, regardless of any connection to infringing activity in the United States. To the contrary, the entirely extraterritorial production, use, or sale of an invention patented in the United States is an independent, intervening act *1372 that, under almost all circumstances, cuts off the chain of causation initiated by an act of domestic infringement. Cf. *Morrison v. Nat'l Australia Bank Ltd.*, 561 U.S. 247, 130 S.Ct. 2869, 2884, 177 L.Ed.2d 535 (2010) ("But the presumption against extraterritorial application would be a craven watchdog indeed if it retreated to its kennel whenever *some* domestic activity is involved in the case.").

The district court determined that the jury had "clearly adopted the measure of damages posed by Power Integrations expert, Dr. Troxel" in reaching the combined damages award of over \$33 million. In view of this determination, the district court correctly concluded that there was "no legal basis that supports the jury award in the amount of \$33 million" because Dr. Troxel's estimate of \$30 million in damages was not "rooted in Fairchild's activity in the United States." Indeed, Dr. Troxel testified on cross-examination that he did not quantify an amount of damages based on any offer for sale by Fairchild in the United States. We find neither compelling facts nor a reasonable justification for finding that Power Integrations is entitled to "full compensation" in the form of damages based on loss of sales in foreign markets which it claims were a foreseeable result of infringing conduct in the United States. See *F. Hoffmann-La Roche Ltd. v. Empagran S.A.*, 542 U.S. 155, 166, 124 S.Ct. 2359, 159 L.Ed.2d 226 (2004) (finding it unreasonable to apply the law at issue to conduct that is significantly foreign, "insofar as that conduct causes independent foreign harm and that foreign harm alone gives rise to the plaintiff's claim").

We thus reject Power Integrations' argument that there exists a legal basis sufficient to uphold the jury's original damages award, which was based on worldwide sales and hold that the district court correctly decided that the jury's original damages award was contrary to law.

2. Expert Testimony on Damages

¹³⁷¹ Fairchild additionally challenges the evidentiary basis of the jury's award, which was based on a damages estimate provided at trial by Power Integrations' damages

expert Dr. Troxel. Dr. Troxel formulated his estimate based on a document describing worldwide shipments of mobile phones during the third quarters of 2004 and 2005. Although the document relates generally to worldwide sales of mobile phones from all vendors, it contains more detailed information for some vendors, including Samsung. Specifically, Dr. Troxel relied on a table in the document that indicates that during the third quarter of 2005, Samsung shipped 26.8 million phones worldwide, up from 22.7 million phones during the third quarter in 2004. Dr. Troxel used the worldwide sales data for Samsung's mobile phones to estimate sales of the accused power circuits, which Samsung incorporated into its mobile phone chargers.

On appeal, Fairchild argues that Dr. Troxel's testimony was speculative and his data inadmissible. In Fairchild's view, Dr. Troxel's methodology suffered from layered assumptions and unwarranted speculation. Fairchild insists that Dr. Troxel made two speculative leaps in his analysis: First, he assumed that each Samsung mobile phone included a charger. Second, he assumed that each of these chargers incorporated an infringing power circuit. Fairchild further argues that the document on which Dr. Troxel relied for Samsung's sales data was an unauthenticated hearsay "press release" retrieved from the Internet. In sum, Fairchild argues that Dr. Troxel's testimony, in view of his methodology and data sources, was uniquely unreliable and legally inadmissible.

Power Integrations responds that Dr. Troxel's methodology was reasonable and his data source reliable. According to *1373 Power Integrations, Dr. Troxel's methodology did not require any more speculation than is usually permitted in calculating compensatory damages. Power Integrations further argues that because the document on which Dr. Troxel relied in his expert analysis would be reasonably relied upon by experts in his field, the document need not be independently admissible.

In determining damages, a jury may rely on expert testimony. 35 U.S.C. § 284. District courts, as gatekeepers, must nevertheless ensure that all expert testimony is rooted in firm scientific or technical ground. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589–90, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993); *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 148, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999). To that end, the Federal Rules of Evidence require that an expert's testimony be the product of reliable principles and methods applied to sufficient facts or data. Fed.R.Evid. 702(b),(c). The trial judge must ensure that the expert has "reliably applied the principles and methods to the facts of the case." *Id.* at 702(d). Data relied on by the expert "need not be

admissible for the opinion to be admitted” if experts in the field would reasonably rely on such data. *Fed.R.Evid.* 703. The trial judge must have considerable leeway in deciding how to determine whether the expert’s testimony is sufficiently reliable. *Kumho Tire*, 526 U.S. at 152, 119 S.Ct. 1167.

Here, Dr. Troxel’s damages testimony was unreliable in several respects. Initially, the source of the documents on which Dr. Troxel relied for his estimate of Samsung’s worldwide sales is unclear. When asked whether the provider of the documents “found [them] off the internet,” Dr. Troxel responded, “I can only assume so.” Power Integrations’ only response to the questionable source of Dr. Troxel’s sales documents is that Dr. Troxel “was a qualified expert, and he found the [documents] and other materials he considered, while researching the case.” We disagree with Power Integrations that the source and reliability of data relied upon by an expert is otherwise immaterial. Our rules of evidence require that an expert’s testimony be “the product of reliable principles and methods” applied to “sufficient facts or data.” *Fed.R.Evid.* 702(b), (c). Thus, while an expert’s data need not be admissible, the data cannot be derived from a manifestly unreliable source. See *Montgomery County v. Microvote Corp.*, 320 F.3d 440, 448 (3d Cir.2003) (finding expert’s data source unreliable where “some of the things that were shown to [the expert] he didn’t seem to know where they were from or what the source of them were”); cf. *Emigh v. Consol. Rail Corp.*, 710 F.Supp. 608, 612 (W.D.Pa.1989) (“[W]hen the underlying source is so unreliable as to render it more prejudicial than probative, ... Rule 703 cannot be used as a backdoor to get the evidence before the jury.”).

While Dr. Troxel’s data source was unreliable, so was his methodology. Here, Dr. Troxel made two speculative leaps. First, the document on which Dr. Troxel relied for his worldwide damages estimate indicated worldwide shipments of Samsung’s mobile phones. As Dr. Troxel testified, however, the infringing power circuits were found in mobile phone chargers, not in mobile phones. Dr. Troxel’s sales document does not mention chargers or otherwise indicate sales of chargers. His analysis assumed that each of Samsung’s phones shipped with a charger. While Power Integrations is quick to point out that Dr. Troxel’s assumption was not unreasonable, the document relied upon by Dr. Troxel does not specify the nature of the shipments, nor does it provide any reliable link which might indicate that the shipped phones included chargers. Without *1374 more, we cannot safely assume that all of these shipments must have included a charger.

Dr. Troxel’s second speculative step was when he

assumed from his document not only that each of Samsung’s shipments included a charger, but that each of these chargers incorporated an infringing power circuit. Dr. Troxel’s sales document lists no model numbers or other indicia from which he could reasonably infer that chargers assumed to be included incorporated Fairchild’s infringing power circuits. Power Integrations’ Vice President of Worldwide Sales testified at trial that several other companies sold competing power circuits to Samsung. Further, Power Integrations retained more than 50% of Samsung’s business. Thus, the data indicate that at least some of Samsung’s chargers could have incorporated the competing power circuits or Power Integrations’ own circuits, which do not infringe. Dr. Troxel had no way to distinguish between infringing and noninfringing chargers, and his assumption that all chargers incorporated an infringing power circuit was speculation.

In the end, we are left with an expert opinion derived from unreliable data and built on speculation. Without more, Dr. Troxel’s testimony and data regarding worldwide shipments of Samsung’s mobile phones are too far removed from the facts of this case, which involves Fairchild’s infringing power circuits. Dr. Troxel’s layered assumptions lack the hallmarks of genuinely useful expert testimony. *Kumho Tire*, 526 U.S. at 156, 119 S.Ct. 1167. Such unreliable testimony frustrates a primary goal of expert testimony in any case, which is meant to place experience from professional specialization at the jury’s disposal, not muddle the jury’s fact-finding with unreliability and speculation.

For these reasons, we find that the district court abused its discretion in admitting Dr. Troxel’s testimony, which was both unreliable and based on insufficient data. In view of our other holdings in this case, we do not find that the district court’s decision to admit Dr. Troxel’s testimony warrants a new trial.

G. Remittitur

¹³⁸¹ Upon rejecting the jury’s original damages award, the district court considered “the alternatives presented at trial,” and accepted Power Integrations’ argument that 18% of the infringing devices sold worldwide are eventually imported into the United States by unnamed third parties. Although in such cases the unnamed third parties—not Fairchild—would directly infringe the patents, the court found that the jury had grounds to find Fairchild liable under a theory of infringement by inducement. As evidence of Fairchild’s intent to induce

infringement, the district court cited Power Integrations' evidence that Fairchild had indemnified its largest offshore customers for potential infringement in the United States, including Fairchild's "joint defense agreement with Samsung and one of [Samsung's] largest cell phone charger subcontractors, Dongyang."

Based on its review, the district court determined that sufficient evidence existed to support a portion of the jury's award "to the extent it was based on inducement of infringement." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 589 F.Supp.2d 505, 512 (D.Del.2008). The court based its determination on testimony from Power Integrations' expert that 18% of Samsung's worldwide sales were eventually imported into the United States. "[T]his figure," the court said, "necessarily means that 82% are not imported into the United States." *Id.* Accordingly, the court "reduce[d] the jury's damages award by 82%, representing that portion of the infringing products not imported into the United States." *Id.*

*1375 The 18% domestic sales figure which the district court adopted is based in the testimony of Dr. Troxel, Power Intergrations' expert. To support his testimony that 18% of Samsung's mobile phones sold worldwide are imported into the United States, Dr. Troxel relied on a combination of two documents: The first document, which we discuss above in relation to the jury's award, indicates worldwide shipments of Samsung mobile phones for the third quarters of 2004 and 2005. The second document indicates total sales of Samsung mobile phones in the United States during the third quarter of 2005. Like the first document, the data in the second document relate only to mobile phones, and not to chargers or power circuits. Combining the data in these two documents, Dr. Troxel calculated the percentage of Samsung's worldwide sales during the third quarter of 2005 that represented mobile phones eventually sold in the United States.

On appeal, Fairchild argues that the district court improperly relied on Dr. Troxel's estimates in formulating its remitted damages award. Specifically, Fairchild argues that Dr. Troxel's testimony regarding domestic infringing sales was speculative, based on hearsay internet articles, and ultimately inadmissible. Thus, Fairchild argues that Dr. Troxel's testimony regarding third-party domestic sales was not sufficient to sustain the district court's remitted damages award. Fairchild further argues that the evidence does not support an award of damages for infringement by inducement, which requires both specific intent and underlying direct infringement. Accordingly, while Fairchild agrees with the district court that the

original jury award was contrary to law and unsupported by the evidence, Fairchild argues that the district court's remitted damages award was similarly improper.

The district court's decision to base its remittitur on the 18% figure provided by Dr. Troxel gives credence to the saying that a tainted data base produces flawed results. Setting aside whether the decision to grant remittitur was correct, the evidence on the record does not support the district court's decision to base its remitted damages award on a percentage of Samsung's worldwide sales of mobile phones.

First, the district court erred when it relied on Samsung's worldwide sales of mobile phones as evidence, in value or quantity, of sales of Fairchild's infringing components. As we hold above with respect to the testimony of Dr. Troxel, such reliance is impermissibly speculative. The subject data include no indicators that could appropriately be used to identify infringing sales. Thus, the evidence demonstrates no direct connection between Samsung's worldwide sales of mobile phones and sales of Fairchild's infringing power circuits. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 1 Fed.Appx. 879, 883–84 (Fed.Cir.2001) ("[I]n cases in which there is a question whether every sale leads to an instance of direct infringement, a patentee must ... establish the connection between sales and direct infringement.").

Second, the district court erred when it accepted Dr. Troxel's assumption that 18% of Samsung's worldwide sales, in value or quantity, were infringing sales made in the United States. Dr. Troxel based his assumption on a combination of his first document indicating worldwide sales of Samsung's mobile phones, and his second document indicating sales of the same in the United States. Arguably, Dr. Troxel's data indicate that during the relevant period 18% of Samsung's worldwide sales of mobile phones were sales in the United States. Nevertheless, the data do not support Dr. Troxel's assumption that the *1376 18% of Samsung's mobile phones sold in the United States included chargers incorporating Fairchild's infringing circuits. In fact, evidence was presented that Samsung sold chargers that did not incorporate Fairchild's infringing circuits. As a result, Dr. Troxel's assumption that all purported U.S. sales included infringing circuits amounts to pure speculation. Although direct evidence of infringement is not required, we consistently require that the record demonstrate something more than speculation that infringing activity has occurred. *See E-Pass Techs., Inc. v. 3Com Corp.*, 473 F.3d 1213, 1222 (Fed.Cir.2007) ("[I]t requires too speculative a leap to conclude that any customer actually performed the claimed method.").

In sum, Dr. Troxel did not present evidence linking Samsung's mobile phone sales data to Fairchild's infringing power circuits, other than to say that Fairchild sold its infringing components to Samsung. There is no evidence that the imports of Samsung products included chargers, nor is there evidence that any included chargers incorporated Fairchild's infringing circuits. Accordingly, the amount of the district court's remittitur is not supported by substantial evidence, and we hold that the district court erred in relying on Dr. Troxel's inherently speculative 18% figure.

For the reasons above, we find that Power Integrations adduced insufficient evidence of induced infringement to sustain the district court's award of damages under that theory. Because there was no basis upon which a reasonable jury could find Fairchild liable for induced infringement, we vacate the district court's damages award.

H. Direct Infringement

^[39] Before the trial on infringement and damages, the parties agreed to a stipulation that Fairchild made or sold within the United States, or imported into the United States, accused devices having a total value of \$765,724.⁶ The parties' stipulation relates to Fairchild's own manufacture, sale, or importation, which on a finding of infringement would amount to stipulated direct infringement. Fairchild noted the stipulation before the district court in its motion for remittitur, JMOL, or a new trial on damages, and again notes the stipulation in its brief on appeal. At trial, counsel for Power Integrations read the parties' stipulation into evidence prior to testimony of Power Integrations' damages expert Dr. Troxel. Power Integrations ultimately argued at trial that Fairchild was liable for infringing activity beyond the scope of the stipulation, based on comingled theories of direct and induced infringement.

The jury returned a general verdict awarding Power Integrations a total of \$33,981,781 in damages. The jury's total award was divided into individual awards for past lost profits due to lost sales (\$14,981,828), past and future lost profits due to price erosion (\$1,952,893 and \$13,018,379), and a lump sum reasonable royalty (\$4,028,681). Although the district court instructed the jury on both direct and indirect infringement, the verdict form did not specify whether the jury's award was based on a finding of direct infringement, infringement by inducement, or both. In its order of remittitur, however,

the district court made clear that its remitted *1377 award, representing 18% of the jury's original damages award, was based on Power Integrations' theory of induced infringement.

As we have already concluded, the record contains insufficient evidence to support Fairchild's liability for induced infringement. The record, however, does reflect evidence that would support a finding of Fairchild's liability for direct infringement. Fairchild stipulated that it made or sold within the United States, or imported into the United States, accused devices worth \$765,724. This stipulation to Fairchild's domestic activity was read into evidence and considered by the jury in the infringement trial. Following the jury's infringement verdict, Fairchild's stipulation became essentially a stipulation to direct infringement. Thus, the record supports a finding of Fairchild's liability for direct infringement, at least with respect to the products included in the stipulation.

^[40] ^[41] Where, as here, the jury returns a general verdict, we must "presume[] the existence of fact findings implied from the jury's having reached that verdict." *Starceski v. Westinghouse Elec. Corp.*, 54 F.3d 1089, 1100 (3d Cir.1995) (quoting *R.R. Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1516 (Fed.Cir.1984)). Infringement and damages are findings of fact, and we review a jury's findings on both issues for substantial evidence. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1309–10 (Fed.Cir.2009). Here, we must presume that the jury's original \$33 million award was based on a finding of direct infringement, and we must honor's the jury's determination of damages to the extent supported by substantial evidence. See U.S. Const. amend. VII; *Starceski*, 54 F.3d at 1100.

Based on the foregoing, we affirm the jury's implicit finding that Fairchild is liable to Power Integrations for direct infringement. See *Starceski*, 54 F.3d at 1100. We find the issue of damages from Fairchild's direct infringement "so distinct and separable from the others that a trial of it alone may be had without injustice." See *Gasoline Prods.*, 283 U.S. at 500, 51 S.Ct. 513. On remand, therefore, the district court shall hold a new trial to determine the proper amount of damages for Fairchild's direct infringement that is supported by substantial evidence in the existing record. We anticipate that Fairchild's liability for direct infringement will be commensurate in scope with the accused domestic activity to which Fairchild stipulated. Nevertheless, the parties on appeal have not briefed this issue, and we acknowledge that the district court is most fit to make this determination in the first instance.

I. Price Erosion

^{142]} Before the trial on infringement and damages, Fairchild moved the district court for partial summary judgment on the issue of pre-suit damages. In its motion, Fairchild asserted that Power Integrations had failed to mark its patented products in accordance with 35 U.S.C. § 287, the patent marking statute. Therefore, Fairchild argued, the marking statute precluded Power Integrations from relying on *any* “economic or market data prior to the date” Fairchild was notified of its infringement.⁷

The district court granted Fairchild’s motion for partial summary judgment. ***1378** The court specifically “grant[ed] Fairchild’s request that all actual damages calculations be based on conditions occurring on or after the October 20, 2004 notice date.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, No. 04–CV–1371, ECF No. 265 (D.Del. Jun. 2, 2006). By its ruling, the court prohibited Power Integrations from introducing evidence that Fairchild’s pre-notice infringing sales had depressed the market price of the patented products, thus reducing Power Integrations’ profits on sales *after* the notice date.

Power Integrations cross-appeals the district court’s decision to exclude evidence of pre-notice price erosion for the purpose of calculating damages from Fairchild’s post-notice infringement. Power Integrations urges that, while the marking statute precludes recovery of damages for infringement before the notice date, the statute does not require courts to ignore pre-notice price erosion when calculating damages for post-notice infringement. Thus, Power Integrations argues the district court erred in excluding evidence of pre-notice market data for use in calculating damages for Fairchild’s infringement that occurred after the notice date. According to Power Integrations, the court should have admitted evidence regarding price changes from the start of Fairchild’s infringing activity for use in determining compensation for Fairchild’s post-notice infringements. Power Integrations suggests that, when assessing compensable price erosion for post-notice infringements, we must assess market conditions at the time Fairchild’s infringing products first entered the market.

^{143]} Lost revenue caused by a reduction in the market price of a patented good due to infringement is a legitimate element of compensatory damages. Indeed, an “infringer’s activities do more than divert sales to the infringer. They also depress the price [of the patented product]. Competition drives price toward marginal cost.”

In re Mahurkar Double Lumen Hemodialysis Catheter Patent Litig., 831 F.Supp. 1354, 1384 (N.D.Ill.1993), *aff’d.*, 71 F.3d 1573 (Fed.Cir.1995). Because the patentee is entitled to what she would have made “had the Infringer not infringed,” *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507, 84 S.Ct. 1526, 12 L.Ed.2d 457 (1964), damages for infringement may account for both lost sales and reduction of prices due to infringing competition, *see Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 551, 6 S.Ct. 934, 29 L.Ed. 954 (1886) (“Reduction of prices, and consequent loss of profits, enforced by infringing competition, is a proper ground for awarding damages.”). We thus recognize the economic principle of “price erosion” in calculating compensatory damages for patent infringement. *See Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1357 (Fed.Cir.2001).

^{144]} The patent marking statute limits recoverable damages where a patentee fails to mark her patented products. 35 U.S.C. § 287; *see also Wine Ry. Appliance Co. v. Enter. Ry. Equip. Co.*, 297 U.S. 387, 397, 56 S.Ct. 528, 80 L.Ed. 736 (1936) (“All these acts reveal the purpose to require that marks be put on patented articles for the information of the public.”). Where a patentee does not appropriately mark her products, she may not recover damages for infringement occurring before notice to the infringer.⁸

***1379** ^{145]} The marking statute provides a temporal limitation on *damages* for infringement. It does not define—nor does it redefine—acts of infringement. That task is left to 35 U.S.C. § 271(a), which provides that “whoever without authority makes, uses, offers to sell, or sells any patented invention ... infringes the patent.” 35 U.S.C. § 271(a). While the marking statute limits recovery of damages for infringement occurring before the “infringer was notified *of the infringement*,” the statute refers to the pre-notice infringing activity as “infringement.” 35 U.S.C. § 287(a) (emphasis added). Indeed, pre-notice infringement is still infringement. What differs is that a patentee may not recover damages for such pre-notice infringement.

In *Wang*, we were faced with a similar situation. There, the patentee’s failure to mark its patented products precluded recovery of damages for infringement prior to notice. There were, however, post-notice infringing sales for which damages were legally recoverable, and the district court endeavored to determine a reasonable royalty rate for these post-notice sales. The district court determined that the date of a hypothetical royalty negotiation should be the date of notice rather than “the earlier date, the date on which the patents issued and infringement of the invention technically began, but for

which plaintiffs are barred by 35 U.S.C. § 287 from seeking damages.” We reversed on appeal because “the court confused limitation on damages due to lack of notice with determination of the time when damages first began to accrue, and it is the latter which is controlling in a hypothetical royalty determination.” *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 870 (Fed.Cir.1993).

[46] [47] [48] [49] We thus acknowledged in *Wang* that while the marking statute precludes recovery of damages for pre-notice infringement, we must assess damages for post-notice infringement relative to market conditions at the point in time when infringement began.⁹ Even the infringer’s pre-notice infringing activity is part of her whole infringement, and it is the whole of her infringement which we must consider in calculating damages for legally compensable post-notice infringement. To the extent an infringer’s pre-notice infringement erodes the market price of a patented product, that price erosion is relevant in determining for each post-notice act of infringement what the patentee would have made *but for the infringement*. See *Aro*, 377 U.S. at 507, 84 S.Ct. 1526 (asking what the patentee would have made “had the [i]nfringer *not infringed*” (emphasis added)); *Amstar Corp. v. Envirotech Corp.*, 823 F.2d 1538, 1543 (Fed.Cir.1987) (“In a market with only two viable competitors, one may infer that the patentee would have made the infringer’s sales or charged higher prices but for the infringing competition.”). Accordingly, we hold that a price erosion analysis relating to damages arising from post-notice infringement must measure price changes against *infringement-free* market conditions, and thus the proper starting point of such a price erosion *1380 analysis is the date of first infringement.

The district court’s decision to exclude Power Integrations’ evidence of pre-notice price erosion was incorrect as a matter of law. We thus reverse the district court’s grant of partial summary judgment for Fairchild. In the new trial on damages for direct infringement, the district court shall admit Power Integrations’ evidence of pre-notice price erosion that is relevant in calculating damages for Fairchild’s post-notice direct infringement.

J. Accounting

[50] Following both jury trials, Power Integrations moved the district court for an accounting of Fairchild’s postverdict infringing sales. The district court denied the motion due to Power Integrations’ failure to request an accounting either in its amended complaint or in the

parties’ joint pretrial order. The district court acknowledged some ambiguity as to whether Fairchild had agreed to an accounting earlier in litigation; nevertheless, the court found that Power Integrations had not “preserved its rights to an accounting by expressly requesting one in either its Amended Complaint or the Final Pretrial Order.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, No. 04–CV–1371, 2008 WL 5263899, at *1 (D.Del. Dec. 12, 2008).

Power Integrations cross-appeals the district court’s denial of its post-trial motion for an accounting. Power Integrations contends that our decision in *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1213 (Fed.Cir.2010), requires an accounting of post-verdict damages.

In Fairchild’s view, *Finjan* does not control here. Unlike in *Finjan*, Fairchild argues, the timing of Power Integrations’ motion for a post-verdict accounting is extremely prejudicial. Fairchild insists that Power Integrations’ request for an accounting is a veiled attempt to remedy its deficient damages case. Fairchild urges us not to give Power Integrations a “second bite at the apple.”

Despite Fairchild’s objection, our decision in *Finjan* is on point. There, *Finjan* challenged the district court’s decision to deny *Finjan* an accounting for post-judgment damages. *Id.* at 1212. The defendants argued that *Finjan* had waived its right to an accounting because *Finjan*’s complaint sought only “such damages as it shall prove *at trial*.” *Id.* at 1213. We found that “nothing in this statement forfeited the right to prove damages for sales that occurred after trial,” and accordingly, we rejected the defendant’s waiver argument. *Id.* We noted that *Finjan*’s complaint additionally sought “[s]uch further and other relief as the Court and/or jury may deem proper and just,” and we found no prejudice from the timing of *Finjan*’s motion. *Id.* “Therefore,” we held, “the district court should have awarded compensation for any infringement prior to the injunction.” *Id.*

Power Integrations is correct that it was entitled to an accounting for Fairchild’s post-verdict infringement.¹⁰ We see nothing *1381 in the record to suggest that Power Integrations waived its right to a post-verdict accounting. In its complaint, Power Integrations requested, among other things, “money damages sustained as a result of defendants’ infringement.” This statement contains no temporal limit on the damages requested. Power Integrations’ complaint further requested “such other and further relief as this Court finds just and proper.” As in *Finjan*, this open-ended request confirms that Power

Integrations intended no waiver of any appropriate remedy. In any event, Power Integrations' purported waiver was unclear enough that the district court found it "ambiguous" whether Fairchild had actually agreed at some point to an accounting. Based on the foregoing, we cannot see how Power Integrations waived its right to an accounting.

We reverse the district court's denial of Power Integrations' motion for an accounting. We are nevertheless sympathetic to Fairchild's insistence that a reversal on this issue should not give Power Integrations "a second bite at the apple." Accordingly, the district court on remand shall limit the scope of its accounting to those post-verdict infringing sales, if any, which are substantially related to the direct infringement by Fairchild which the district court finds supported by the existing record. *See Fed.R.Civ.P. 59* ("The court may, on motion, grant a new trial on all or some of the issues...."); *cf. Gasoline Prods.*, 283 U.S. at 500, 51 S.Ct. 513 (explaining that partial new trial is permissible if "issue to be retried is so distinct and separable from the others that a trial of it alone may be had without injustice"). At this point, Power Integrations has had a full and fair opportunity to develop the record, and its right to a post-verdict accounting is not an unlimited after-hours hunting license.

Conclusion

Footnotes

- 1 We note that Fairchild filed the requests for reexamination with the Patent Office after conclusion of the first jury trial but before conclusion of the second.
- 2 In 2011, Congress reformatted the paragraphs of § 112 as subsections. Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011). Section 112, ¶ 6, is now codified as § 112(f). To maintain consistency with the district court's opinion, we refer to § 112, ¶ 6.
- 3 Limiting a power supply's signature—a unique signal pattern that "identifies [the power supply] much in the nature of a fingerprint"—is desirable in high-security applications. *Martin* col. 1 ll. 24–27. Without signature masking, a "signature signal can be used to identify a particular source ... by means of appropriate spectrum analyzing." *Id.* col. 1 ll. 29–36.
- 4 Listing *Martin* as an anticipatory prior art reference, the Patent Office's Board of Patent Appeals and Interferences affirmed the examiner's final rejection of claim 1 of the '876 Patent in *ex parte* reexamination. *Ex parte Powers Integration, Inc.*, No. 2010-011021, Reexamination No. 90/008,326 (B.P.A.I. 22 Dec. 2010).
- 5 Our patent damages statute mandates, "[u]pon finding for the claimant the court shall award the claimant damages *adequate to compensate for the infringement*, but in no event less than a reasonable royalty." 35 U.S.C. § 284 (emphasis added). "Congress sought [by the statute] to ensure that the patent owner would in fact receive full compensation for 'any damages' he suffered as a result of the infringement." *Gen. Motors Corp.*, 461 U.S. at 654–55, 103 S.Ct. 2058. Thus, "when a wrong has been done, and the law gives a remedy, ... [t]he injured party is to be placed, as near as may be, in the situation he would have occupied if the wrong had not been committed." *Albemarle Paper Co. v. Moody*, 422 U.S. 405, 418–19, 95 S.Ct. 2362, 45 L.Ed.2d 280 (1975) (quoting

In accordance with the foregoing, we affirm the district court's ruling on obviousness. We reverse the district court's construction of the "soft start circuit" limitations in claim 4 of the '851 Patent and in claims 9 and 14 of the '366 Patent. We remand for the district court to construe those claims and determine what effects, if any, the new constructions have on the validity of those patents and on Fairchild's infringement thereof. We vacate the district court's award of damages based on infringement by inducement, and we remand for a new trial on damages resulting from Fairchild's direct infringement. We order an accounting limited to postverdict infringing sales related to Fairchild's direct infringement. Finally, we vacate the district court's finding of willful infringement, and we remand with instructions to reassess willfulness in view of our other holdings in this case.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, AND REMANDED

*1382 Costs


Each party shall bear its own costs.

All Citations

711 F.3d 1348, 106 U.S.P.Q.2d 1361

Wicker v. Hoppock, 73 U.S. (6 Wall.) 94, 99, 18 L.Ed. 752 (1867)).

- 6 While the parties on appeal do not dispute that \$765,724 is the correct value of the accused products included in their stipulation, we note an ambiguity in the record: The stipulation to which the parties have directed us, and which was read into evidence at trial, specifies that between February 2004 and October 2005 Fairchild manufactured, using a particular process, 2.73 million units of a particular accused device at a fabrication facility in Portland, Maine for a total *revenue* to Fairchild of \$547,724. On remand, the district court should review and evaluate this discrepancy.
- 7 We refer to the date Power Integrations first notified Fairchild of its alleged infringement as “the date of notice” or “the notice date.” Here, the district court determined and the parties do not dispute that the notice date is October 20, 2004, the date on which Power Integrations first filed suit against Fairchild. *See* 35 U.S.C. § 287(a) (“Filing of an action for infringement shall constitute such notice.”); *see also U.S. Philips Corp. v. Iwasaki Elec. Co. Ltd.*, 505 F.3d 1371, 1374 (Fed.Cir.2007).
- 8 The marking statute provides, with respect to damages, In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event *damages may be recovered only for infringement occurring after such notice.*
35 U.S.C. § 287(a) (emphasis added).
- 9 Indeed, the marking statute’s temporal limitation on damages does not legitimize pre-notice infringement. That infringing activity, quite definitely, remains an intrusion on the patentee’s exclusive right. Rather, the marking statute operates precisely to preclude recovery of each quantum of damage—that is, each lost sale or reasonable royalty payment—that arises from an act of pre-notice infringement.
- 10 *See Finjan*, 626 F.3d at 1212–13; *see also* 35 U.S.C. § 284 (2012) (“When damages are not found by a jury, the court *shall* assess them.”) (emphasis added); *Ecolab, Inc. v. FMC Corp.*, 569 F.3d 1335, 1353, *amended on reh’g in part*, 366 Fed.Appx. 154 (Fed.Cir.2009) (“To the extent that an accounting is so required—e.g. to calculate and award damages for post-verdict sales—the district court should order an accounting on remand.”); *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1303 (Fed.Cir.2009) (“A damages award for pre-verdict sales of the infringing product does not fully compensate the patentee because it fails to account for post-verdict sales of repair parts.”); *Carborundum Co. v. Molten Metal Equip. Innovations, Inc.*, 72 F.3d 872, 882 (Fed.Cir.1995) (explaining that patentee is “not fully compensated” if “damages award did not include future lost sales.”); *accord Edwards Lifesciences AG v. CoreValve, Inc.*, No. 08–91–GMS, 2011 WL 446203, at *16 (D.Del. Feb. 7, 2011), *aff’d in part, remanded in part*, 699 F.3d 1305 (Fed.Cir.2012) (“The court will grant ... an accounting of the number of [infringing] devices made, used, sold ... through the date of the order accompanying this memorandum.”); *TruePosition Inc. v. Andrew Corp.*, No. Civ. 05–747–SLR, 2009 WL 1651042, at *1 n. 2 (D.Del. June 10, 2009), *aff’d*, 389 Fed.Appx. 1000 (Fed.Cir.2010) (“The court permitted additional discovery ... to complete a post-trial accounting of damages.”); *Becton Dickinson & Co. v. Tyco Healthcare Grp. LP*, No. 02–1694 GMS, 2008 WL 4745882, at *5 (D.Del. Oct. 29, 2008) (“BD’s request for a post-verdict accounting of damages and interest that BD has incurred from the sale of [the infringing devices] ... since October 7, 2007, is GRANTED.”).

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by *Huffman v. Activision Publishing, Inc.*, E.D.Tex.,
November 27, 2019

137 S.Ct. 1514
Supreme Court of the United States

TC HEARTLAND LLC, petitioner
v.
KRAFT FOODS GROUP BRANDS LLC.

No. 16–341.

Argued March 27, 2017.

Decided May 22, 2017.

Synopsis

Background: Patentee brought infringement action against alleged infringer, a competitor organized under Indiana law that had allegedly shipped an infringing product to Delaware. The United States District Court for the District of Delaware, *Leonard P. Stark*, Chief Judge, 2015 WL 5613160, adopted report and recommendation of Christopher J. Burke, United States Magistrate Judge, 2015 WL 4778828, and denied competitor’s motion to either dismiss or transfer on ground that venue did not lie in Delaware. Competitor petitioned for writ of mandamus. The United States Court of Appeals for the Federal Circuit, *Moore*, Circuit Judge, 821 F.3d 1338, denied the petition, and certiorari was granted.

Holdings: The Supreme Court, Justice *Thomas*, held that:

^[1] amendments to the general venue statute did not modify meaning of the patent venue statute, abrogating *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574, and

^[2] a domestic corporation “resides” only in its State of incorporation for purposes of the patent venue statute.

Reversed and remanded.

Justice *Gorsuch* took no part in the consideration or decision of the case.

West Headnotes (3)

[1] Patents Residence

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 1 In General
291 k 1726 Venue
291 k 1728 Residence

Amendments to the general venue statute, defining corporate residence as any judicial district in which a defendant corporation is subject to the court’s personal jurisdiction, did not modify meaning of the patent venue statute; abrogating *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574. 28 U.S.C.A. §§ 1391(a, c), 1400(b).

[267 Cases that cite this headnote](#)

[2] Patents Residence

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 1 In General
291 k 1726 Venue
291 k 1728 Residence

A domestic corporation “resides” only in its State of incorporation for purposes of the patent venue statute. 28 U.S.C.A. § 1400(b).

[369 Cases that cite this headnote](#)

[3] Statutes Relationship to statute amended; clarification or change of meaning

361 Statutes
361 V Amendment
361 k 1454 Construction of Amendatory and Amended Statutes
361 k 1456 Relationship to statute amended;

clarification or change of meaning

When Congress intends to effect a change in the meaning of a statute when it amends another statute, it ordinarily provides a relatively clear indication of its intent in the text of the amended provision.

11 Cases that cite this headnote

1514 Syllabus

The patent venue statute, 28 U.S.C. § 1400(b), provides that “[a]ny civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.” In *Fourco Glass Co. v. Transmirra Products Corp.*, 353 U.S. 222, 226, 77 S.Ct. 787, 1 L.Ed.2d 786, this Court concluded that for purposes of § 1400(b) a domestic corporation “resides” only in its State of incorporation, rejecting the argument that § 1400(b) incorporates the broader definition of corporate “residence” contained in *1515 the general venue statute, 28 U.S.C. § 1391(c). Congress has not amended § 1400(b) since *Fourco*, but it has twice amended § 1391, which now provides that, “[e]xcept as otherwise provided by law” and “[f]or all venue purposes,” a corporation “shall be deemed to reside, if a defendant, in any judicial district in which such defendant is subject to the court’s personal jurisdiction with respect to the civil action in question.” §§ 1391(a), (c).

Respondent filed a patent infringement suit in the District Court for the District of Delaware against petitioner, a competitor that is organized under Indiana law and headquartered in Indiana but ships the allegedly infringing products into Delaware. Petitioner moved to transfer venue to a District Court in Indiana, claiming that venue was improper in Delaware. Citing *Fourco*, petitioner argued that it did not “resid[e]” in Delaware and had no “regular and established place of business” in Delaware under § 1400(b). The District Court rejected these arguments. The Federal Circuit denied a petition for a writ of mandamus, concluding that § 1391(c) supplies the definition of “resides” in § 1400(b). The Federal Circuit reasoned that because petitioner resided in Delaware under § 1391(c), it also resided there under § 1400(b).

Held : As applied to domestic corporations, “reside[nce]”

in § 1400(b) refers only to the State of incorporation. The amendments to § 1391 did not modify the meaning of § 1400(b) as interpreted by *Fourco*. Pp. 1517 – 1521.

(a) The venue provision of the Judiciary Act of 1789 covered patent cases as well as other civil suits. *Stonite Products Co. v. Melvin Lloyd Co.*, 315 U.S. 561, 563, 62 S.Ct. 780, 86 L.Ed. 1026. In 1897, Congress enacted a patent specific venue statute. This new statute (§ 1400(b)’s predecessor) permitted suit in the district of which the defendant was an “inhabitant” or in which the defendant both maintained a “regular and established place of business” and committed an act of infringement. 29 Stat. 695. A corporation at that time was understood to “inhabit” *only* the State of incorporation. This Court addressed the scope of § 1400(b)’s predecessor in *Stonite*, concluding that it constituted “the exclusive provision controlling venue in patent infringement proceedings” and thus was not supplemented or modified by the general venue provisions. 315 U.S., at 563, 62 S.Ct. 780.

In 1948, Congress recodified the patent venue statute as § 1400(b). That provision, which remains unaltered today, uses “resides” instead of “inhabit [s].” At the same time, Congress also enacted the general venue statute, § 1391, which defined “residence” for corporate defendants. In *Fourco*, this Court reaffirmed *Stonite*’s holding, observing that Congress enacted § 1400(b) as a standalone venue statute and that nothing in the 1948 recodification evidenced an intent to alter that status, even the fact that § 1391(c) by “its terms” embraced “all actions,” 353 U.S., at 228, 77 S.Ct. 787. The Court also concluded that “resides” in the recodified version bore the same meaning as “inhabit[s]” in the pre-1948 version. See *id.*, at 226, 77 S.Ct. 787.

This landscape remained effectively unchanged until 1988, when Congress amended the general venue statute, § 1391(c). The revised provision stated that it applied “[f]or purposes of venue under this chapter.” In *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574, 1578, the Federal Circuit held that, in light of this amendment, § 1391(c) established the definition for all other venue statutes under the same “chapter,” including § 1400(b). In 2011, Congress adopted the current version of § 1391, which provides that its general definition applies *1516 “[f]or all venue purposes.” The Federal Circuit reaffirmed *VE Holding* in the case below. Pp. 1517 – 1520.

(b) In *Fourco*, this Court definitively and unambiguously held that the word “reside[nce]” in § 1400(b), as applied to domestic corporations, refers only to the State of incorporation. Because Congress has not amended §

1400(b) since *Fourco*, and neither party asks the Court to reconsider that decision, the only question here is whether Congress changed § 1400(b)’s meaning when it amended § 1391. When Congress intends to effect a change of that kind, it ordinarily provides a relatively clear indication of its intent in the amended provision’s text. No such indication appears in the current version of § 1391.

Respondent points out that the current § 1391(c) provides a default rule that, on its face, applies without exception “[f]or all venue purposes.” But the version at issue in *Fourco* similarly provided a default rule that applied “for venue purposes,” 353 U.S., at 223, 77 S.Ct. 787 and those phrasings are not materially different in this context. The addition of the word “all” to the already comprehensive provision does not suggest that Congress intended the Court to reconsider its decision in *Fourco*. Any argument based on this language is even weaker now than it was when the Court rejected it in *Fourco*. *Fourco* held that § 1400(b) retained a meaning distinct from the default definition contained in § 1391(c), even though the latter, by its terms, included no exceptions. The current version of § 1391 includes a saving clause, which expressly states that the provision does not apply when “otherwise provided by law,” thus making explicit the qualification that the *Fourco* Court found implicit in the statute. Finally, there is no indication that Congress in 2011 ratified the Federal Circuit’s decision in *VE Holding*. Pp. 1519 – 1521.

821 F.3d 1338, reversed and remanded.

THOMAS, J., delivered the opinion of the Court, in which all other Members joined, except GORSUCH, J., who took no part in the consideration or decision of the case.

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Opinion

Justice THOMAS delivered the opinion of the Court.

The question presented in this case is where proper venue lies for a patent infringement lawsuit brought against a domestic corporation. The patent venue statute, 28 U.S.C. § 1400(b), provides that “[a]ny civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.” In *1517 *Fourco Glass Co. v. Transmirra Products Corp.*, 353 U.S. 222, 226, 77 S.Ct. 787, 1 L.Ed.2d 786 (1957), this Court concluded that for purposes of § 1400(b) a domestic corporation “resides” only in its State of incorporation.

^[1] ^[2] In reaching that conclusion, the Court rejected the argument that § 1400(b) incorporates the broader definition of corporate “residence” contained in the general venue statute, 28 U.S.C. § 1391(c). 353 U.S., at 228, 77 S.Ct. 787. Congress has not amended § 1400(b) since this Court construed it in *Fourco*, but it has amended § 1391 twice. Section 1391 now provides that, “[e]xcept as otherwise provided by law” and “[f]or all venue purposes,” a corporation “shall be deemed to reside, if a defendant, in any judicial district in which such defendant is subject to the court’s personal jurisdiction with respect to the civil action in question.” §§ 1391(a), (c). The issue in this case is whether that definition supplants the definition announced in *Fourco* and allows a plaintiff to bring a patent infringement lawsuit against a corporation in any district in which the corporation is subject to personal jurisdiction. We conclude that the amendments to § 1391 did not modify the meaning of § 1400(b) as interpreted by *Fourco*. We therefore hold that a domestic corporation “resides” only in its State of incorporation for purposes of the patent venue statute.

I

Petitioner, which is organized under Indiana law and headquartered in Indiana, manufactures flavored drink mixes.¹ Respondent, which is organized under Delaware law and has its principal place of business in Illinois, is a competitor in the same market. As relevant here, respondent sued petitioner in the District Court for the District of Delaware, alleging that petitioner’s products

infringed one of respondent's patents. Although petitioner is not registered to conduct business in Delaware and has no meaningful local presence there, it does ship the allegedly infringing products into the State.

Petitioner moved to dismiss the case or transfer venue to the District Court for the Southern District of Indiana, arguing that venue was improper in Delaware. See 28 U.S.C. § 1406. Citing *Fourco*'s holding that a corporation resides only in its State of incorporation for patent infringement suits, petitioner argued that it did not "resid[e]" in Delaware under the first clause of § 1400(b). It further argued that it had no "regular and established place of business" in Delaware under the second clause of § 1400(b). Relying on Circuit precedent, the District Court rejected these arguments, 2015 WL 5613160 (D.Del., Sept. 24, 2015), and the Federal Circuit denied a petition for a writ of mandamus, *In re TC Heartland LLC*, 821 F.3d 1338 (2016). The Federal Circuit concluded that subsequent statutory amendments had effectively amended § 1400(b) as construed in *Fourco*, with the result that § 1391(c) now supplies the definition of "resides" in § 1400(b). 821 F.3d, at 1341–1343. Under this logic, because the *1518 District of Delaware could exercise personal jurisdiction over petitioner, petitioner resided in Delaware under § 1391(c) and, therefore, under § 1400(b). We granted certiorari, 580 U.S. —, 137 S.Ct. 614, 196 L.Ed.2d 490 (2016), and now reverse.

II

A

The history of the relevant statutes provides important context for the issue in this case. The Judiciary Act of 1789 permitted a plaintiff to file suit in a federal district court if the defendant was "an inhabitant" of that district or could be "found" for service of process in that district. Act of Sept. 24, 1789, § 11, 1 Stat. 79. The Act covered patent cases as well as other civil suits. *Stonite Products Co. v. Melvin Lloyd Co.*, 315 U.S. 561, 563, 62 S.Ct. 780, 86 L.Ed. 1026 (1942). In 1887, Congress amended the statute to permit suit only in the district of which the defendant was an inhabitant or, in diversity cases, of which either the plaintiff or defendant was an inhabitant. See Act of Mar. 3, 1887, § 1, 24 Stat. 552; see also *Stonite*, *supra*, at 563–564, 62 S.Ct. 780.

This Court's decision in *In re Hohorst*, 150 U.S. 653, 661–662, 14 S.Ct. 221, 37 L.Ed. 1211 (1893), arguably suggested that the 1887 Act did not apply to patent cases. As a result, while some courts continued to apply the Act to patent cases, others refused to do so and instead permitted plaintiffs to bring suit (in line with the pre-1887 regime) anywhere a defendant could be found for service of process. See *Stonite*, *supra*, at 564–565, 62 S.Ct. 780. In 1897, Congress resolved the confusion by enacting a patent specific venue statute. See Act of Mar. 3, 1897, ch. 395, 29 Stat. 695. In so doing, it "placed patent infringement cases in a class by themselves, outside the scope of general venue legislation." *Brunette Machine Works, Ltd. v. Kockum Industries, Inc.*, 406 U.S. 706, 713, 92 S.Ct. 1936, 32 L.Ed.2d 428 (1972). This new statute (§ 1400(b)'s predecessor) permitted suit in the district of which the defendant was an "inhabitant," or a district in which the defendant both maintained a "regular and established place of business" and committed an act of infringement. 29 Stat. 695. At the time, a corporation was understood to "inhabit" *only* the State in which it was incorporated. *Shaw v. Quincy Mining Co.*, 145 U.S. 444, 449–450, 12 S.Ct. 935, 36 L.Ed. 768 (1892).

The Court addressed the scope of § 1400(b)'s predecessor in *Stonite*. In that case, the two defendants inhabited different districts within a single State. The plaintiff sought to sue them both in the same district, invoking a then governing general venue statute that, if applicable, permitted it to do so. 315 U.S., at 562–563, 62 S.Ct. 780. This Court rejected the plaintiff's venue choice on the ground that the patent venue statute constituted "the exclusive provision controlling venue in patent infringement proceedings" and thus was not supplemented or modified by the general venue provisions. *Id.*, at 563, 62 S.Ct. 780. In the Court's view, the patent venue statute "was adopted to define the exact jurisdiction of the federal courts in actions to enforce patent rights," a purpose that would be undermined by interpreting it "to dovetail with the general provisions relating to the venue of civil suits." *Id.*, at 565–566, 62 S.Ct. 780. The Court thus held that the patent venue statute "alone should control venue in patent infringement proceedings." *Id.*, at 566, 62 S.Ct. 780.

In 1948, Congress recodified the patent venue statute as § 1400(b). See Act of June 25, 1948, 62 Stat. 936. The recodified provision, which remains unaltered today, states that "[a]ny civil action for patent *1519 infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business." 28 U.S.C. § 1400(b) (1952

ed.). This version differs from the previous one in that it uses “resides” instead of “inhabit[s].” At the same time, Congress also enacted the general venue statute, § 1391, which defined “residence” for corporate defendants. That provision stated that “[a] corporation may be sued in any judicial district in which it is incorporated or licensed to do business or is doing business, and such judicial district shall be regarded as the residence of such corporation for venue purposes.” § 1391(c) (1952 ed.).

Following the 1948 legislation, courts reached differing conclusions regarding whether § 1400(b)’s use of the word “resides” incorporated § 1391(c)’s definition of “residence.” See *Fourco*, 353 U.S., at 224, n. 3, 77 S.Ct. 787 (listing cases). In *Fourco*, this Court reviewed a decision of the Second Circuit holding that § 1391(c) defined residence for purposes of § 1400(b), “just as that definition is properly ... incorporated into other sections of the venue chapter.” *Transmirra Prods. Corp. v. Fourco Glass Co.*, 233 F.2d 885, 886 (1956). This Court squarely rejected that interpretation, reaffirming *Stonite*’s holding that § 1400(b) “is the sole and exclusive provision controlling venue in patent infringement actions, and ... is not to be supplemented by ... § 1391(c).” 353 U.S., at 229, 77 S.Ct. 787. The Court observed that Congress enacted § 1400(b) as a standalone venue statute and that nothing in the 1948 recodification evidenced an intent to alter that status. The fact that § 1391(c) by “its terms” embraced “all actions” was not enough to overcome the fundamental point that Congress designed § 1400(b) to be “complete, independent and alone controlling in its sphere.” *Id.*, at 228, 77 S.Ct. 787.

The Court also concluded that “resides” in the recodified version of § 1400(b) bore the same meaning as “inhabit[s]” in the pre-1948 version. See *id.*, at 226, 77 S.Ct. 787 (“[T]he [w]ords ‘inhabitant’ and ‘resident,’ as respects venue, are synonymous” (internal quotation marks omitted)). The substitution of “resides” for “inhabit[s]” thus did not suggest any alteration in the venue rules for corporations in patent cases. Accordingly, § 1400(b) continued to apply to domestic corporations in the same way it always had: They were subject to venue only in their States of incorporation. See *ibid.* (The use of “resides” “negat[es] any intention to make corporations suable, in patent infringement cases, where they are merely ‘doing business,’ because those synonymous words [“inhabitant” and “resident”] mean *domicile* and, in respect of corporations, mean the state of incorporation only”).

B

This landscape remained effectively unchanged until 1988, when Congress amended the general venue statute, § 1391(c), to provide that “[f]or purposes of venue under this chapter, a defendant that is a corporation shall be deemed to reside in any judicial district in which it is subject to personal jurisdiction at the time the action is commenced.” Judicial Improvements and Access to Justice Act, § 1013(a), 102 Stat. 4669. The Federal Circuit in *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574 (1990), announced its view of the effect of this amendment on the meaning of the patent venue statute. The court reasoned that the phrase “[f]or purposes of venue under this chapter” was “exact and classic language of incorporation,” *id.*, at 1579, and that § 1391(c) accordingly established the definition for *1520 all other venue statutes under the same “chapter.” *Id.*, at 1580. Because § 1400(b) fell within the relevant chapter, the Federal Circuit concluded that § 1391(c), “on its face,” “clearly applies to § 1400(b), and thus redefines the meaning of the term ‘resides’ in that section.” *Id.*, at 1578.

Following *VE Holding*, no new developments occurred until Congress adopted the current version of § 1391 in 2011 (again leaving § 1400(b) unaltered). See Federal Courts Jurisdiction and Venue Clarification Act of 2011, § 202, 125 Stat. 763. Section 1391(a) now provides that, “[e]xcept as otherwise provided by law,” “this section shall govern the venue of all civil actions brought in district courts of the United States.” And § 1391(c)(2), in turn, provides that, “[f]or all venue purposes,” certain entities, “whether or not incorporated, shall be deemed to reside, if a defendant, in any judicial district in which such defendant is subject to the court’s personal jurisdiction with respect to the civil action in question.” In its decision below, the Federal Circuit reaffirmed *VE Holding*, reasoning that the 2011 amendments provided no basis to reconsider its prior decision.

III

¹³¹ We reverse the Federal Circuit. In *Fourco*, this Court definitively and unambiguously held that the word “reside[nce]” in § 1400(b) has a particular meaning as applied to domestic² corporations: It refers only to the State of incorporation. Congress has not amended § 1400(b) since *Fourco*, and neither party asks us to reconsider our holding in that case. Accordingly, the only question we must answer is whether Congress changed

the meaning of § 1400(b) when it amended § 1391. When Congress intends to effect a change of that kind, it ordinarily provides a relatively clear indication of its intent in the text of the amended provision. See *United States v. Madigan*, 300 U.S. 500, 506, 57 S.Ct. 566, 81 L.Ed. 767 (1937) (“[T]he modification by implication of the settled construction of an earlier and different section is not favored”); A. Scalia & B. Garner, *Reading Law* 331 (2012) (“A clear, authoritative judicial holding on the meaning of a particular provision should not be cast in doubt and subjected to challenge whenever a related though not utterly inconsistent provision is adopted in the same statute or even in an affiliated statute”).

The current version of § 1391 does not contain any indication that Congress intended to alter the meaning of § 1400(b) as interpreted in *Fourco*. Although the current version of § 1391(c) provides a default rule that applies “[f]or all venue purposes,” the version at issue in *Fourco* similarly provided a default rule that applied “for venue purposes.” 353 U.S., at 223, 77 S.Ct. 787 (internal quotation marks omitted). In this context, we do not see any material difference between the two phrasings. See *Pure Oil Co. v. Suarez*, 384 U.S. 202, 204–205, 86 S.Ct. 1394, 16 L.Ed.2d 474 (1966) (construing “ ‘for venue purposes’ ” to cover “all venue statutes”). Respondent argues that “ ‘all venue purposes’ means ‘all venue purposes’—not ‘all venue purposes *except* for patent venue.’ ” Brief for Respondent 21. The plaintiffs in *Fourco* advanced the same argument. See 353 U.S., at 228, 77 S.Ct. 787 (“The main *1521 thrust of respondents’ argument is that § 1391(c) is clear and unambiguous and that its terms include all actions—including patent infringement actions”). This Court was not persuaded then, and the addition of the word “all” to the already comprehensive provision does not suggest that Congress intended for us to reconsider that conclusion.

This particular argument is even weaker under the current version of § 1391 than it was under the provision in place at the time of *Fourco*, because the current provision includes a saving clause expressly stating that it does not apply when “otherwise provided by law.” On its face, the version of § 1391(c) at issue in *Fourco* included no exceptions, yet this Court still held that “resides” in § 1400(b) retained its original meaning contrary to § 1391(c)’s default definition. *Fourco*’s holding rests on even firmer footing now that § 1391’s saving clause expressly contemplates that certain venue statutes may retain definitions of “resides” that conflict with its default

definition. In short, the saving clause makes explicit the qualification that this Court previously found implicit in the statute. See *Pure Oil*, *supra*, at 205, 86 S.Ct. 1394 (interpreting earlier version of § 1391 to apply “to all venue statutes using residence as a criterion, at least in the absence of contrary restrictive indications in any such statute”). Respondent suggests that the saving clause in § 1391(a) does not apply to the definitional provisions in § 1391(c), Brief for Respondent 31–32, but that interpretation is belied by the text of § 1391(a), which makes clear that the saving clause applies to the entire “section.” See § 1391(a)(1) (“Except as otherwise provided by law—... this *section* shall govern the venue of all civil actions” (emphasis added)).

Finally, there is no indication that Congress in 2011 ratified the Federal Circuit’s decision in *VE Holding*. If anything, the 2011 amendments undermine that decision’s rationale. As petitioner points out, *VE Holding* relied heavily—indeed, almost exclusively—on Congress’ decision in 1988 to replace “for venue purposes” with “[f]or purposes of venue *under this chapter*” (emphasis added) in § 1391(c). Congress deleted “under this chapter” in 2011 and worded the current version of § 1391(c) almost identically to the original version of the statute. Compare § 1391(c) (2012 ed.) (“[f]or all venue purposes”) with § 1391(c) (1952 ed.) (“for venue purposes”). In short, nothing in the text suggests congressional approval of *VE Holding*.

* * *

As applied to domestic corporations, “reside[nce]” in § 1400(b) refers only to the State of incorporation. Accordingly, we reverse the judgment of the Court of Appeals and remand the case for further proceedings consistent with this opinion.

It is so ordered.

Justice GORSUCH took no part in the consideration or decision of this case.

All Citations

137 S.Ct. 1514, 197 L.Ed.2d 816, 85 USLW 4249, 122 U.S.P.Q.2d 1553, 17 Cal. Daily Op. Serv. 4638, 2017 Daily Journal D.A.R. 4633, 26 Fla. L. Weekly Fed. S 575

Footnotes

- * The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Timber & Lumber Co.*, 200 U.S. 321, 337, 26 S.Ct. 282, 50 L.Ed. 499.
- 1 The complaint alleged that petitioner is a corporation, and petitioner admitted this allegation in its answer. See App. 11a, 60a. Similarly, the petition for certiorari sought review on the question of “corporate” residence. See Pet. for Cert. i. In their briefs before this Court, however, the parties suggest that petitioner is, in fact, an unincorporated entity. See Brief for Respondent 9, n. 4 (the complaint’s allegation was “apparently inaccurat[e]”); Reply Brief 4. Because this case comes to us at the pleading stage and has been litigated on the understanding that petitioner is a corporation, we confine our analysis to the proper venue for corporations. We leave further consideration of the issue of petitioner’s legal status to the courts below on remand.
- 2 The parties dispute the implications of petitioner’s argument for foreign corporations. We do not here address that question, nor do we express any opinion on this Court’s holding in *Brunette Machine Works, Ltd. v. Kockum Industries, Inc.*, 406 U.S. 706, 92 S.Ct. 1936, 32 L.Ed.2d 428 (1972) (determining proper venue for foreign corporation under then existing statutory regime).

 KeyCite Yellow Flag - Negative Treatment
Declined to Follow by *U.S. v. Evseroff*, 2d Cir.(N.Y.), June 26, 2013

649 F.3d 1276
United States Court of Appeals,
Federal Circuit.

THERASENSE, INC. (now known as
Abbott Diabetes Care, Inc.) and Abbott
Laboratories, Plaintiffs–Appellants,
v.
BECTON, DICKINSON AND COMPANY,
and Nova Biomedical Corporation,
Defendants–Appellees,
and
Bayer HealthCare LLC,
Defendant–Appellee.

Nos. 2008–1511, 2008–1512, 2008–1513,
2008–1514, 2008–1595.

May 25, 2011.

Synopsis

Background: Patentee brought action against competitors alleging infringement of patent directed toward disposable blood glucose test strips for diabetes management. The United States District Court for the Northern District of California, *Martin J. Jenkins, J.*, 560 F.Supp.2d 835, granted summary judgment of noninfringement and anticipation in part. The District Court, *William H. Alsup, J.*, 565 F.Supp.2d 1088, following bench trial, granted judgment of obviousness and inequitable conduct. Patentee appealed. Panel unanimously upheld district court’s judgments of noninfringement and invalidity, 593 F.3d 1289. Patentee petitioned for rehearing en banc. Petition was granted and judgment of panel vacated, 374 Fed.Appx. 35.

Holdings: The Court of Appeals, *Rader*, Chief Judge, held that:

[1] a finding that a misrepresentation or omission amounts to gross negligence or negligence under a “should have known” standard does not satisfy the inequitable conduct intent requirement, abrogating *Driscoll v. Cebalo*, 731 F.2d 878, 885 and *Orthopedic Equip. Co., Inc. v. All*

Orthopedic Appliances, Inc., 707 F.2d 1376;

[2] a district court should not use a “sliding scale,” where a weak showing of intent may be found sufficient for inequitable conduct based on a strong showing of materiality, and vice versa, abrogating *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350;

[3] a district court may not infer intent solely from materiality, but, instead, a court must weigh the evidence of intent to deceive independent of its analysis of materiality;

[4] to meet the clear and convincing evidence standard, the specific intent to deceive must be the single most reasonable inference able to be drawn from the evidence;

[5] when there are multiple reasonable inferences that may be drawn, intent to deceive cannot be found;

[6] the patentee need not offer any good faith explanation unless the accused infringer first proves a threshold level of intent to deceive by clear and convincing evidence;

[7] the materiality required to establish inequitable conduct is but-for materiality; and

[8] remand was required.

Affirmed in part, vacated in part, and remanded.

O’Malley, Circuit Judge, filed opinion concurring in part and dissenting in part.

Bryson, Circuit Judge, filed dissenting opinion, in which *Gajarsa*, *Dyk*, and *Prost*, Circuit Judges, joined.

Reinstating Parts I, III, and IV of panel decision reported at 593 F.3d 1289, which affirmed district court’s judgment of obviousness, noninfringement, and anticipation, respectively.

West Headnotes (27)

[1] **Patents** → Patent Found Unenforceable for Inequitable Conduct

291 Patents
291 IV Patent Applications and Proceedings

291IV(G)Postissuance Proceedings
291IV(G)7Patent Found Unenforceable for
Inequitable Conduct
291k1281In general
(Formerly 291k97.8)

Inequitable conduct is an equitable defense to patent infringement that, if proved, bars enforcement of a patent.

[172 Cases that cite this headnote](#)

[2] **Patents** → Patent Found Unenforceable for Inequitable Conduct

291Patents
291IVPatent Applications and Proceedings
291IV(G)Postissuance Proceedings
291IV(G)7Patent Found Unenforceable for
Inequitable Conduct
291k1281In general
(Formerly 291k97.8)

Inequitable conduct regarding any single claim renders the entire patent unenforceable.

[34 Cases that cite this headnote](#)

[3] **Patents** → Patent Found Unenforceable for Inequitable Conduct

291Patents
291IVPatent Applications and Proceedings
291IV(G)Postissuance Proceedings
291IV(G)7Patent Found Unenforceable for
Inequitable Conduct
291k1281In general
(Formerly 291k97.8)

Unlike other deficiencies, inequitable conduct cannot be cured by patent reissue or reexamination.

[11 Cases that cite this headnote](#)

[4] **Patents** → Patent Found Unenforceable for

Inequitable Conduct

291Patents
291IVPatent Applications and Proceedings
291IV(G)Postissuance Proceedings
291IV(G)7Patent Found Unenforceable for
Inequitable Conduct
291k1281In general
(Formerly 291k97.8)

The taint of a finding of inequitable conduct can spread from a single patent to render unenforceable other related patents and applications in the same technology family.

[29 Cases that cite this headnote](#)

[5] **Patents** → Exceptional cases in general

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)8Costs and Fees
291k1996Attorney Fees
291k1998Exceptional cases in general
(Formerly 291k325.11(2.1))

Prevailing on a claim of inequitable conduct often makes a patent case “exceptional,” leading potentially to an award of attorney fees. [35 U.S.C.A. § 285](#).

[13 Cases that cite this headnote](#)

[6] **Privileged Communications and Confidentiality** → Criminal or other wrongful act or transaction; crime-fraud exception

311HPrivileged Communications and Confidentiality
311HIIIAttorney-Client Privilege
311Hk154Criminal or other wrongful act or transaction; crime-fraud exception

In a patent case, a finding of inequitable conduct may prove the crime or fraud exception to the attorney-client privilege.

[31 Cases that cite this headnote](#)

the reference, knew that it was material, and made a deliberate decision to withhold it.

[7] **Patents** ➡ Intent to deceive in general

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1283 Intent to deceive in general (Formerly 291k97.10)

To prevail on a claim of inequitable conduct, the accused infringer must prove that the patentee acted with the specific intent to deceive the Patent and Trademark Office (PTO); a finding that the misrepresentation or omission amounts to gross negligence or negligence under a “should have known” standard does not satisfy this intent requirement; abrogating *Driscoll v. Cebalo*, 731 F.2d 878, 885 and *Orthopedic Equip. Co., Inc. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376.

116 Cases that cite this headnote

[8] **Patents** ➡ Intent to deceive in general
Patents ➡ Evidence

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1283 Intent to deceive in general (Formerly 291k97.10)
291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct involving nondisclosure of information, clear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference; in other words, the accused infringer must prove by clear and convincing evidence that the applicant knew of

194 Cases that cite this headnote

[9] **Patents** ➡ Determination

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1288 Determination
291k1289 In general (Formerly 291k97.14)

In a patent case alleging inequitable conduct, a district court should not use a “sliding scale,” where a weak showing of intent may be found sufficient based on a strong showing of materiality, and vice versa; abrogating *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350.

20 Cases that cite this headnote

[10] **Patents** ➡ Evidence

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct, a district court may not infer intent solely from materiality, but, instead, a court must weigh the evidence of intent to deceive independent of its analysis of materiality.

71 Cases that cite this headnote

[11] **Patents** ➡ Intent to deceive in general

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1283 Intent to deceive in general (Formerly 291k97.10)

In a patent case alleging inequitable conduct, proving that the applicant knew of a reference, should have known of its materiality, and decided not to submit it to the Patent and Trademark Office (PTO) does not prove specific intent to deceive.

[156 Cases that cite this headnote](#)

[12] Patents → Evidence

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct, a district court may infer intent from indirect and circumstantial evidence; however, to meet the clear and convincing evidence standard, the specific intent to deceive must be the single most reasonable inference able to be drawn from the evidence, in that the evidence must be sufficient to require a finding of deceitful intent in the light of all the circumstances.

[295 Cases that cite this headnote](#)

[13] Patents → Evidence

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct, when there are multiple reasonable inferences that may be drawn, intent to deceive cannot be found.

[95 Cases that cite this headnote](#)

[14] Federal Courts → Inferences from evidence

170B Federal Courts
170BXVII Courts of Appeals
170BXVII(K) Scope and Extent of Review
170BXVII(K)2 Standard of Review
170Bk3576 Procedural Matters
170Bk3598 Evidence
170Bk3598(7) Inferences from evidence (Formerly 170Bk870.1)

District court's factual findings regarding what reasonable inferences may be drawn from the evidence are reviewed for clear error.

[1 Cases that cite this headnote](#)

[15] Patents → Evidence

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct, because the party alleging inequitable conduct bears the burden of proof, the patentee need not offer any good faith explanation unless the accused infringer first proves a threshold level of intent to deceive by clear and convincing evidence; the absence of a good faith explanation for withholding a material reference does not, by itself, prove intent to deceive.

[46 Cases that cite this headnote](#)

[16] Patents  **Materiality in general**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general (Formerly 291k97.9)

As a general matter, in a patent case, the materiality required to establish inequitable conduct is but-for materiality; when an applicant fails to disclose prior art to the Patent and Trademark Office (PTO), that prior art is but-for material if the PTO would not have allowed a claim had it been aware of the undisclosed prior art.

[246 Cases that cite this headnote](#)

[17] Patents  **Materiality in general**
Patents  **Evidence**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general (Formerly 291k97.9)
291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1287 Evidence (Formerly 291k97.13)

In a patent case alleging inequitable conduct, when assessing the materiality of a withheld reference, a court must determine whether the Patent and Trademark Office (PTO) would have allowed the claim if it had been aware of the undisclosed reference; in making this patentability determination, the court should apply the preponderance of the evidence standard and give claims their broadest reasonable construction.

[90 Cases that cite this headnote](#)

[18] Patents  **Materiality in general**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general (Formerly 291k97.9)

In a patent case alleging inequitable conduct, even if a district court does not invalidate a claim based on a deliberately withheld reference, the reference may be material if it would have blocked patent issuance under the different evidentiary standards of the Patent and Trademark Office (PTO).

[22 Cases that cite this headnote](#)

[19] Patents  **Patent Found Unenforceable for Inequitable Conduct**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1281 In general (Formerly 291k97.8)

As an equitable doctrine, inequitable conduct hinges on basic fairness; the remedy imposed by a court of equity should be commensurate with the violation.

[6 Cases that cite this headnote](#)

[20] Patents  **Patent Found Unenforceable for Inequitable Conduct**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for

Inequitable Conduct
291k1281 In general
(Formerly 291k97.8)

Because inequitable conduct renders an entire patent, or even a patent family, unenforceable, as a general rule, this doctrine should only be applied in instances where the patentee's misconduct resulted in the unfair benefit of receiving an unwarranted claim; enforcement of an otherwise valid patent does not injure the public merely because of misconduct, lurking somewhere in patent prosecution, that was immaterial to the patent's issuance, and a patentee obtains no advantage from misconduct if the patent would have issued anyway.

[28 Cases that cite this headnote](#)

[21] Patents  **Materiality in general**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general
(Formerly 291k97.9)

In a patent case alleging inequitable conduct, when the patentee has engaged in affirmative acts of egregious misconduct, such as the filing of an unmistakably false affidavit, the misconduct is material.

[72 Cases that cite this headnote](#)

[22] Patents  **Materiality in general**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general
(Formerly 291k97.9)

Because neither mere nondisclosure of prior art references to the Patent and Trademark Office

(PTO) nor failure to mention prior art references in an affidavit constitutes affirmative egregious misconduct, claims of inequitable conduct that are based on such omissions require proof of but-for materiality.

[57 Cases that cite this headnote](#)

[23] Patents  **Materiality in general**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1282 Materiality in general
(Formerly 291k97.9)

In a patent case alleging inequitable conduct, a court is not bound by the definition of materiality in Patent and Trademark Office (PTO) rules, which lack but-for materiality. 37 C.F.R. § 1.56.

[45 Cases that cite this headnote](#)

[24] Patents  **Determination**

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1288 Determination
291k1289 In general
(Formerly 291k97.14)

In patent case alleging inequitable conduct, remand was required for district court to determine whether Patent and Trademark Office (PTO) would not have granted patent but for patentee's failure to disclose briefs to European Patent Office (EPO); in particular, district court had to determine whether PTO would have found declaration by patentee's director of research and development, and accompanying submission by patent attorney, unpersuasive in overcoming obviousness rejection over patentee's prior patent if it had disclosed EPO

briefs.

4 Cases that cite this headnote

[25] **Patents** → Determination

291 Patents
291IV Patent Applications and Proceedings
291IV(G) Postissuance Proceedings
291IV(G)7 Patent Found Unenforceable for Inequitable Conduct
291k1288 Determination
291k1289 In general (Formerly 291k97.14)

In patent case alleging inequitable conduct, remand was required for district court to determine whether there was clear and convincing evidence demonstrating that patentee's director of research and development and patent attorney knew of briefs to European Patent Office (EPO), knew of their materiality, and made conscious decision to not disclose them in order to deceive Patent and Trademark Office (PTO), since court had found intent to deceive based on absence of good faith explanation for failing to disclose EPO briefs and court had relied upon "should have known" negligence standard in reaching its finding of intent.

5 Cases that cite this headnote

[26] **Patents** → In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility (Formerly 291k328(2))

US Patent 4,225,410, US Patent 4,545,382. Cited as Prior Art.

19 Cases that cite this headnote

[27] **Patents** → In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility (Formerly 291k328(2))

US Patent 5,820,551, US Patent 6,143,164, US Patent 6,592,745. Cited.

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Cisco Systems, Inc., and Generic Pharmaceutical Association on rehearing en banc. With *1282 him on the brief were [Elaine Herrmann Blais](#), [Nicholas K. Mitrokostas](#) and [Andrew M. Batchelor](#).

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Before [RADER](#), Chief Judge, [NEWMAN](#), [LOURIE](#), [BRYSON](#), [GAJARSA](#), [LINN](#), [DYK](#), [PROST](#), [MOORE](#), [O'MALLEY](#), and [REYNA](#), Circuit Judges.

Opinion

Opinion for the court filed by Chief Judge [RADER](#), in which Circuit Judges [NEWMAN](#), [LOURIE](#), [LINN](#), [MOORE](#), and [REYNA](#) join in full, and in which Circuit Judge [O'MALLEY](#) joins in part V.

Concurring-in-part and dissenting-in-part opinion filed by Circuit Judge [O'MALLEY](#).

Dissenting opinion filed by Circuit Judge [BRYSON](#), in which Circuit Judges [GAJARSA](#), [DYK](#), and [PROST](#) join.

[RADER](#), Chief Judge.

The United States District Court for the Northern District of California found [U.S. Patent No. 5,820,551](#) (“the ‘551 patent”) unenforceable due to inequitable conduct. *Therasense, Inc. v. Becton, Dickinson & Co.*, 565 F.Supp.2d 1088 (N.D.Cal.2008) (“*Trial Opinion*”). Therasense, Inc. (now Abbott Diabetes Care, Inc.) and Abbott Laboratories (collectively, “Abbott”) appeal that judgment. This court vacates and remands for further proceedings consistent with this opinion.

I

The ‘551 patent involves disposable blood glucose test strips for [diabetes](#) management. These strips employ electrochemical sensors to measure the level of glucose in a sample of blood. When blood contacts a test strip,

glucose in the blood reacts with an enzyme on the strip, resulting in the transfer of electrons from the glucose to the enzyme. A mediator transfers these electrons to an electrode on the strip. Then, the electrons flow from the strip to a glucose meter, which calculates the glucose concentration based on the electrical current.

The '551 patent claims a test strip with an electrochemical sensor for testing whole blood without a membrane over the electrode:

1. A single use disposable electrode strip for attachment to the signal readout circuitry of a sensor to detect a current representative of the concentration of a compound in a drop of a whole blood sample comprising:

a) an elongated support having a substantially flat, planar surface, adapted for releasable attachment to said readout circuitry;

b) a first conductor extending along said surface and comprising a conductive element for connection to said readout circuitry;

c) an active electrode on said strip in electrical contact with said first conductor and positioned to contact said whole blood sample;

d) a second conductor extending along said surface comprising a conductive element for connection to said read out circuitry; and

e) a reference counterelectrode in electrical contact with said second conductor and positioned to contact said whole blood sample,

wherein said active electrode is configured to be exposed to said whole blood sample without an intervening membrane or other whole blood filtering member

*1283 '551 patent col. 13 l.29–col. 14 l.3 (emphasis added). “Whole blood,” an important term in the claim, means blood that contains all of its components, including red blood cells.

In the prior art, some sensors employed diffusion-limiting membranes to control the flow of glucose to the electrode because the slower mediators of the time could not deal with a rapid influx of glucose. Other prior art sensors used protective membranes to prevent “fouling.” Fouling occurs when red blood cells stick to the active electrode and interfere with electron transfer to the electrode. Protective membranes permit glucose molecules to pass, but not red blood cells.

Abbott filed the original application leading to the '551 patent in 1984. Over thirteen years, that original application saw multiple rejections for anticipation and obviousness, including repeated rejections over U.S. Patent No. 4,545,382 (“the '382 patent”), another patent owned by Abbott. The '382 patent specification discussed protective membranes in the following terms: “Optionally, but preferably when being used on live blood, a protective membrane surrounds both the enzyme and the mediator layers, permeable to water and glucose molecules.” Col.4 ll.63–66. “Live blood” refers to blood within a body.

In 1997, Lawrence Pope, Abbott’s patent attorney, and Dr. Gordon Sanghera, Abbott’s Director of Research and Development, studied the novel features of their application and decided to present a new reason for a patent. Pope presented new claims to the examiner based on a new sensor that did not require a protective membrane for whole blood. Pope asserted that this distinction would overcome the prior art '382 patent, whose electrodes allegedly required a protective membrane. The examiner requested an affidavit to show that the prior art required a membrane for whole blood at the time of the invention.

To meet this evidentiary request, Dr. Sanghera submitted a declaration to the U.S. Patent and Trademark Office (“PTO”) stating:

[O]ne skilled in the art would have felt that an active electrode comprising an enzyme and a mediator would require a protective membrane if it were to be used with a whole blood sample.... [O]ne skilled in the art would not read lines 63 to 65 of column 4 of U.S. Patent No. 4,545,382 to teach that the use of a protective membrane with a whole blood sample is optionally or merely preferred.

J.A. 7637. Pope, in submitting Sanghera’s affidavit, represented:

The art continued to believe [following the '382 patent] that a barrier layer for [a] whole blood sample was necessary....

One skilled in the art would *not* have read the disclosure of the ['382 patent] as teaching that the use of a protective membrane with whole blood samples was optional. He would not, especially in view of the working examples, have read the “optionally, but preferably” language at line 63 of column [4] as a technical teaching but rather mere patent phraseology.

....

There is no teaching or suggestion of unprotected active electrodes for use with whole blood specimens in [the '382 patent]....

J.A. 7645–46.

Several years earlier, while prosecuting the European counterpart to the '382 patent, European Patent EP 0 078 636 ("EP '636"), Abbott made representations to the European Patent Office ("EPO") regarding the same "optionally, but preferably" language in the European specification. *1284 On January 12, 1994, to distinguish a German reference labeled D1, which required a diffusion-limiting membrane, Abbott's European patent counsel argued that their invention did not require a diffusion-limiting membrane:

Contrary to the semipermeable membrane of D1, the protective membrane optionally utilized with the glucose sensor of the patent is [sic] suit is not controlling the permeability of the substrate Rather, in accordance with column 5, lines 30 to 33 of the patent in suit:

"Optionally, but preferably when being used on live blood, a protective membrane surrounds both the enzyme and the mediator layers, permeable to water and glucose molecules."

See also claim 10 of the patent in suit as granted according to which the sensor electrode has an outermost protective membrane (11) permeable to water and glucose molecules.... Accordingly, *the purpose of the protective membrane of the patent in suit, preferably to be used with in vivo measurements, is a safety measurement to prevent any course [sic] particles coming off during use but not a permeability control for the substrate.*

J.A. 6530–31 (emphases added).

On May 23, 1995, Abbott's European patent counsel submitted another explanation about the D1 reference and EP '636.

"Optionally, but preferably when being used on live blood, a protective membrane surrounds both the enzyme and the mediator layers, permeable to water and glucose molecules."

It is submitted that this disclosure is unequivocally clear. The protective membrane is optional, however, it is preferred when used on live blood in order to prevent the larger constituents of the blood, in particular erythrocytes from interfering with the electrode sensor. Furthermore it is said, that said protective membrane should not prevent the glucose molecules from

penetration, the membrane is "permeable" to glucose molecules. This teaches the skilled artisan that, whereas the [D1 membrane] must ... control the permeability of the glucose ... the purpose of the protective membrane in the patent in suit is not to control the permeation of the glucose molecules. For this very reason the sensor electrode as claimed does not have (and must not have) a semipermeable membrane in the sense of D1.

J.A. 6585 (first and third emphases added).

II

In March 2004, Becton, Dickinson and Co. ("Becton") sued Abbott in the District of Massachusetts seeking a declaratory judgment of noninfringement of U.S. Patent Nos. 6,143,164 ("the '164 patent") and 6,592,745 ("the '745 patent"). Becton's product was a blood glucose test strip, the BD Test Strip. Abbott countersued Becton in the Northern District of California alleging that Becton's strip infringed the '164, '745, and '551 patents. The District of Massachusetts then transferred its case to the Northern District of California. Abbott then sued Nova Biomedical Corp. ("Nova"), Becton's supplier, alleging infringement of the patents asserted in Abbott's suit against Becton. In August 2005, Abbott also sued Bayer Healthcare LLC ("Bayer"), alleging that its Microfill and Autodisc blood glucose strips infringed the '551 and '745 patents. The Northern District of California consolidated all of the cases.

The district court granted summary judgment of noninfringement of all asserted claims in the '164 and '745 patents. *Therasense, Inc. v. Becton, Dickinson & Co.*, 560 F.Supp.2d 835, 854, 880 (N.D.Cal.2008). The district court also found nearly *1285 all of the asserted claims of the '745 patent invalid due to anticipation. *Id.* at 880.

Following a bench trial, the district court determined that claims 1–4 of the '551 patent were invalid due to obviousness in light of the '382 patent and U.S. Patent No. 4,225,410 ("the '410 patent"). *Trial Opinion* at 1127. The central issue for obviousness was whether the prior art would have disclosed a glucose sensor without a membrane for whole blood to a person of ordinary skill in the art. The district court found that the '382 patent disclosed sensors in which "a protective membrane was optional in all cases except the case of live blood, in which case the protective membrane was preferred—but not required." *Id.* at 1103. Of primary relevance here, the district court held the '551 patent unenforceable for

inequitable conduct because Abbott did not disclose to the PTO its briefs to the EPO filed on January 12, 1994 and May 23, 1995. *Id.* at 1127.

Abbott appealed the judgments of invalidity, unenforceability, and noninfringement. *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1289 (Fed.Cir.2010), *vacated*, 374 Fed.Appx. 35 (Fed.Cir.2010). A panel of this court unanimously upheld the district court's judgments of noninfringement and invalidity. *Id.* at 1311. On unenforceability, the panel also affirmed, but with a dissent. *Id.* at 1312–25 (Linn, J., dissenting).

Recognizing the problems created by the expansion and overuse of the inequitable conduct doctrine, this court granted Abbott's petition for rehearing en banc and vacated the judgment of the panel. *Therasense*, 374 Fed.Appx. at 35. This court now vacates the district court's inequitable conduct judgment and remands.

III

^[1] Inequitable conduct is an equitable defense to patent infringement that, if proved, bars enforcement of a patent. This judge-made doctrine evolved from a trio of Supreme Court cases that applied the doctrine of unclean hands to dismiss patent cases involving egregious misconduct: *Keystone Driller Co. v. General Excavator Co.*, 290 U.S. 240, 54 S.Ct. 146, 78 L.Ed. 293 (1933), *Hazel-Atlas Glass Co. v. Hartford-Empire Co.*, 322 U.S. 238, 64 S.Ct. 997, 88 L.Ed. 1250 (1944), *overruled on other grounds by Standard Oil Co. v. United States*, 429 U.S. 17, 97 S.Ct. 31, 50 L.Ed.2d 21 (1976), and *Precision Instrument Manufacturing Co. v. Automotive Maintenance Machinery Co.*, 324 U.S. 806, 65 S.Ct. 993, 89 L.Ed. 1381 (1945).

Keystone involved the manufacture and suppression of evidence. 290 U.S. at 243, 54 S.Ct. 146. The patentee knew of “a possible prior use” by a third party prior to filing a patent application but did not inform the PTO. *Id.* at 243, 54 S.Ct. 146. After the issuance of the patent, the patentee paid the prior user to sign a false affidavit stating that his use was an abandoned experiment and bought his agreement to keep secret the details of the prior use and to suppress evidence. *Id.* With these preparations in place, the patentee then asserted this patent, along with two other patents, against Byers Machine Co. (“Byers”). *Keystone Driller Co. v. Byers Mach. Co.*, 4 F.Supp. 159

(N.D. Ohio 1929). Unaware of the prior use and of the cover-up, the court held the patents valid and infringed and granted an injunction. *Id.* at 160.

The patentee then asserted the same patents against General Excavator Co. and Osgood Co. and sought a temporary injunction based on the decree in the previous Byers case. *Keystone*, 290 U.S. at 242, 54 S.Ct. 146. The district court denied the injunctions but made the defendants post bonds. *Id.* The defendants discovered and introduced evidence of the *1286 corrupt transaction between the patentee and the prior user. *Id.* at 243–44, 54 S.Ct. 146. The district court declined to dismiss these cases for unclean hands. *Id.* On appeal, the Sixth Circuit reversed and remanded with instructions to dismiss the complaints. *Id.* The Supreme Court affirmed. *Id.* at 247, 54 S.Ct. 146.

The Supreme Court explained that if the corrupt transaction between the patentee and the prior user had been discovered in the previous Byers case, “the court undoubtedly would have been warranted in holding it sufficient to require dismissal of the cause of action.” *Id.* at 246, 54 S.Ct. 146. Because the patentee used the Byers decree to seek an injunction in the cases against General Excavator Co. and Osgood Co., it did not come to the court with clean hands, and dismissal of these cases was appropriate. *Id.* at 247, 54 S.Ct. 146.

Like *Keystone*, *Hazel-Atlas* involved both the manufacture and suppression of evidence. 322 U.S. at 240, 64 S.Ct. 997. Faced with “apparently insurmountable Patent Office opposition,” the patentee's attorneys wrote an article describing the invention as a remarkable advance in the art and had William Clarke, a well-known expert, sign it as his own and publish it in a trade journal. *Id.* After the patentee submitted the Clarke article to the PTO in support of its application, the PTO allowed a patent to issue. *Id.* at 240–41, 64 S.Ct. 997.

The patentee brought suit against Hazel-Atlas Glass Co. (“Hazel-Atlas”), alleging infringement of this patent. *Id.* at 241, 64 S.Ct. 997. The district court found no infringement. *Id.* On appeal, the patentee's attorneys emphasized the Clarke article, and the Third Circuit reversed the district court's judgment, holding the patent valid and infringed. *Id.* The patentee then went to great lengths to conceal the false authorship of the Clarke article, contacting Clarke multiple times, including before and after Hazel-Atlas's investigators spoke to him. *Id.* at 242–43, 64 S.Ct. 997. After Hazel-Atlas settled with the patentee, the patentee paid Clarke a total of \$8,000. *Id.* These facts surfaced in a later suit, *United States v. Hartford-Empire Co.*, 46 F.Supp. 541 (N.D. Ohio 1942).

Hazel-Atlas, 322 U.S. at 243, 64 S.Ct. 997.

On the basis of these newly-discovered facts, *Hazel-Atlas* petitioned the Third Circuit to vacate its judgment, but the court refused. *Id.* at 243–44, 64 S.Ct. 997. The Supreme Court reversed. *Id.* at 251, 64 S.Ct. 997. The Supreme Court explained that if the district court had learned of the patentee’s deception before the PTO, it would have been warranted in dismissing the patentee’s case under the doctrine of unclean hands. *Id.* at 250, 64 S.Ct. 997. Likewise, had the Third Circuit learned of the patentee’s suppression of evidence, it also could have dismissed the appeal. *Id.* Accordingly, the Supreme Court vacated the judgment against *Hazel-Atlas* and reinstated the original judgment dismissing the patentee’s case. *Id.* at 251, 64 S.Ct. 997.

In *Precision*, the patentee suppressed evidence of perjury before the PTO and attempted to enforce the perjury-tainted patent. 324 U.S. at 816–20, 65 S.Ct. 993. The PTO had declared an interference between two patent applications, one filed by Larson and the other by Zimmerman. *Id.* at 809, 65 S.Ct. 993. Automotive Maintenance Machinery Co. (“Automotive”) owned the Zimmerman application. *Id.* Larson filed his preliminary statement in the PTO proceedings with false dates of conception, disclosure, drawing, description, and reduction to practice. Later, he testified in support of these false dates in an interference proceeding. *Id.* at 809–10, 65 S.Ct. 993.

Automotive discovered this perjury but did not reveal this information to the PTO. *1287 *Id.* at 818, 65 S.Ct. 993. Instead, Automotive entered into a private settlement with Larson that gave Automotive the rights to the Larson application and suppressed evidence of Larson’s perjury. *Id.* at 813–14, 65 S.Ct. 993. Automotive eventually received patents on both the Larson and Zimmerman applications. *Id.* at 814, 65 S.Ct. 993. Despite knowing that the Larson patent was tainted with perjury, Automotive sought to enforce it against others. *Id.* at 807, 65 S.Ct. 993.

The district court found that Automotive had unclean hands and dismissed the suit. *Id.* at 808, 65 S.Ct. 993. The Seventh Circuit reversed. *Id.* The Supreme Court reversed the Seventh Circuit’s decision, explaining that dismissal was warranted because not only had the patentee failed to disclose its knowledge of perjury to the PTO, it had actively suppressed evidence of the perjury and magnified its effects. *Id.* at 818–19, 65 S.Ct. 993.

IV

The unclean hands cases of *Keystone*, *Hazel-Atlas*, and *Precision* formed the basis for a new doctrine of inequitable conduct that developed and evolved over time. Each of these unclean hands cases before the Supreme Court dealt with particularly egregious misconduct, including perjury, the manufacture of false evidence, and the suppression of evidence. See *Precision*, 324 U.S. at 816–20, 65 S.Ct. 993; *Hazel-Atlas*, 322 U.S. at 240, 64 S.Ct. 997; *Keystone*, 290 U.S. at 243, 54 S.Ct. 146. Moreover, they all involved “deliberately planned and carefully executed scheme[s] to defraud” not only the PTO but also the courts. *Hazel-Atlas*, 322 U.S. at 245, 64 S.Ct. 997. As the inequitable conduct doctrine evolved from these unclean hands cases, it came to embrace a broader scope of misconduct, including not only egregious affirmative acts of misconduct intended to deceive both the PTO and the courts but also the mere nondisclosure of information to the PTO. Inequitable conduct also diverged from the doctrine of unclean hands by adopting a different and more potent remedy—unenforceability of the entire patent rather than mere dismissal of the instant suit. See *Precision*, 324 U.S. at 819, 65 S.Ct. 993 (dismissing suit); *Hazel-Atlas*, 322 U.S. at 251, 64 S.Ct. 997 (noting that the remedy was limited to dismissal and did not render the patent unenforceable); *Keystone*, 290 U.S. at 247, 54 S.Ct. 146 (affirming dismissal of suit).

In line with this wider scope and stronger remedy, inequitable conduct came to require a finding of both intent to deceive and materiality. *Star Scientific Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1365 (Fed.Cir.2008). To prevail on the defense of inequitable conduct, the accused infringer must prove that the applicant misrepresented or omitted material information with the specific intent to deceive the PTO. *Id.* The accused infringer must prove both elements—intent and materiality—by clear and convincing evidence. *Id.* If the accused infringer meets its burden, then the district court must weigh the equities to determine whether the applicant’s conduct before the PTO warrants rendering the entire patent unenforceable. *Id.*

This court recognizes that the early unclean hands cases do not present any standard for materiality. Needless to say, this court’s development of a materiality requirement for inequitable conduct does not (and cannot) supplant Supreme Court precedent. Though inequitable conduct developed from these cases, the unclean hands doctrine remains available to supply a remedy for egregious misconduct like that in the Supreme Court cases.

As inequitable conduct emerged from unclean hands, the

standards for intent to deceive and materiality have fluctuated over time. In the past, this court has *1288 espoused low standards for meeting the intent requirement, finding it satisfied based on gross negligence or even negligence. See *Driscoll v. Cebalo*, 731 F.2d 878, 885 (Fed.Cir.1984) (“Where they knew, or should have known, that the withheld reference would be material to the PTO’s consideration, their failure to disclose the reference is sufficient proof of the existence of an intent to mislead the PTO.”); *Orthopedic Equip. Co., Inc. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1383–84 (Fed.Cir.1983) (requiring only gross negligence to sustain a finding of intent). This court has also previously adopted a broad view of materiality, using a “reasonable examiner” standard based on the PTO’s 1977 amendment to Rule 56. See *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1362 (Fed.Cir.1984); see also 37 C.F.R. § 1.56 (1977) (a reference is material if “there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent”). Further weakening the showing needed to establish inequitable conduct, this court then placed intent and materiality together on a “sliding scale.” *Am. Hoist*, 725 F.2d at 1362. This modification to the inequitable conduct doctrine held patents unenforceable based on a reduced showing of intent if the record contained a strong showing of materiality, and vice versa. In effect, this change conflated, and diluted, the standards for both intent and materiality.

This court embraced these reduced standards for intent and materiality to foster full disclosure to the PTO. See *id.* at 1363. This new focus on encouraging disclosure has had numerous unforeseen and unintended consequences. Most prominently, inequitable conduct has become a significant litigation strategy. A charge of inequitable conduct conveniently expands discovery into corporate practices before patent filing and disqualifies the prosecuting attorney from the patentee’s litigation team. See Stephen A. Merrill et al., Nat’l Research Council of the Nat’l Academies, *A Patent System for the 21st Century* 122 (2004). Moreover, inequitable conduct charges cast a dark cloud over the patent’s validity and paint the patentee as a bad actor. Because the doctrine focuses on the moral turpitude of the patentee with ruinous consequences for the reputation of his patent attorney, it discourages settlement and deflects attention from the merits of validity and infringement issues. Committee Position Paper, *The Doctrine of Inequitable Conduct and the Duty of Candor in Patent Prosecution: Its Current Adverse Impact on the Operation of the United States Patent System*, 16 AIPLA Q.J. 74, 75 (1988). Inequitable conduct disputes also “increas[e] the

complexity, duration and cost of patent infringement litigation that is already notorious for its complexity and high cost.” Brief and Appendix of the American Bar Ass’n as Amicus Curiae at 9.

^[2] ^[3] ^[4] Perhaps most importantly, the remedy for inequitable conduct is the “atomic bomb” of patent law. *Aventis Pharma S.A. v. Amphastar Pharm., Inc.*, 525 F.3d 1334, 1349 (Fed.Cir.2008) (Rader, J., dissenting). Unlike validity defenses, which are claim specific, see 35 U.S.C. § 288, inequitable conduct regarding any single claim renders the entire patent unenforceable. *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 877 (Fed.Cir.1988). Unlike other deficiencies, inequitable conduct cannot be cured by reissue, *Aventis*, 525 F.3d at 1341, n. 6, or reexamination, *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1182 (Fed.Cir.1995). Moreover, the taint of a finding of inequitable conduct can spread from a single patent to render unenforceable other related patents and applications in the same technology family. See, e.g., *Consol. Aluminum *1289 Corp. v. Foseco Int’l Ltd.*, 910 F.2d 804, 808–12 (Fed.Cir.1990). Thus, a finding of inequitable conduct may endanger a substantial portion of a company’s patent portfolio.

^[5] ^[6] A finding of inequitable conduct may also spawn antitrust and unfair competition claims. See *Dow Chemical Co. v. Exxon Corp.*, 139 F.3d 1470, 1471 (Fed.Cir.1998) (unfair competition claim); *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 178, 86 S.Ct. 347, 15 L.Ed.2d 247 (1965) (antitrust action for treble damages). Further, prevailing on a claim of inequitable conduct often makes a case “exceptional,” leading potentially to an award of attorneys’ fees under 35 U.S.C. § 285. *Brasseler, U.S.A. I, L.P. v. Stryker Sales Corp.*, 267 F.3d 1370, 1380 (Fed.Cir.2001). A finding of inequitable conduct may also prove the crime or fraud exception to the attorney-client privilege. See *In re Spalding Sports Worldwide, Inc.*, 203 F.3d 800, 807 (Fed.Cir.2000).

With these far-reaching consequences, it is no wonder that charging inequitable conduct has become a common litigation tactic. One study estimated that eighty percent of patent infringement cases included allegations of inequitable conduct. Committee Position Paper at 75; see also Christian Mammen, *Controlling the “Plague”: Reforming the Doctrine of Inequitable Conduct*, 24 Berkeley Tech. L.J. 1329, 1358 (2009). Inequitable conduct “has been overplayed, is appearing in nearly every patent suit, and is cluttering up the patent system.” *Kimberly–Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1454 (Fed.Cir.1984). “[T]he habit of charging inequitable conduct in almost every major patent case has

become an absolute plague. Reputable lawyers seem to feel compelled to make the charge against other reputable lawyers on the slenderest grounds, to represent their client's interests adequately, perhaps." *Burlington Indus., Inc. v. Dayco Corp.*, 849 F.2d 1418, 1422 (Fed.Cir.1988); see also *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1358 (Fed.Cir.2008); *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1482 (Fed.Cir.1998); *Magnivision, Inc. v. Bonneau Co.*, 115 F.3d 956, 960 (Fed.Cir.1997); *Allied Colloids Inc. v. Am. Cyanamid Co.*, 64 F.3d 1570, 1578 (Fed.Cir.1995); *Molins*, 48 F.3d at 1182.

Left unfettered, the inequitable conduct doctrine has plagued not only the courts but also the entire patent system. Because allegations of inequitable conduct are routinely brought on "the slenderest grounds," *Burlington Indus.*, 849 F.2d at 1422, patent prosecutors constantly confront the specter of inequitable conduct charges. With inequitable conduct casting the shadow of a hangman's noose, it is unsurprising that patent prosecutors regularly bury PTO examiners with a deluge of prior art references, most of which have marginal value. See Brief for the United States as Amicus Curiae at 17 (submission of nine hundred references without any indication which ones were most relevant); Brief of the Biotechnology Industry Organization as Amicus Curiae at 7 (submission of eighteen pages of cited references, including five pages listing references to claims, office actions, declarations, amendments, interview summaries, and other communications in related applications). "Applicants disclose too much prior art for the PTO to meaningfully consider, and do not explain its significance, all out of fear that to do otherwise risks a claim of inequitable conduct." ABA Section of Intellectual Property Law, *A Section White Paper: Agenda for 21st Century Patent Reform 2* (2009). This tidal wave of disclosure makes identifying the most relevant prior art more difficult. See Brief for the United States as Amicus Curiae at 1 (submission of "large numbers of prior art references of questionable materiality *1290 ... harms the effectiveness of the examination process"). "This flood of information strains the agency's examining resources and directly contributes to the backlog." *Id.* at 17–18.

While honesty at the PTO is essential, low standards for intent and materiality have inadvertently led to many unintended consequences, among them, increased adjudication cost and complexity, reduced likelihood of settlement, burdened courts, strained PTO resources, increased PTO backlog, and impaired patent quality. This court now tightens the standards for finding both intent and materiality in order to redirect a doctrine that has been overused to the detriment of the public.

V

[7] [8] To prevail on a claim of inequitable conduct, the accused infringer must prove that the patentee acted with the specific intent to deceive the PTO. *Star*, 537 F.3d at 1366 (citing *Kingsdown*, 863 F.2d at 876). A finding that the misrepresentation or omission amounts to gross negligence or negligence under a "should have known" standard does not satisfy this intent requirement. *Kingsdown*, 863 F.2d at 876. "In a case involving nondisclosure of information, clear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference." *Molins*, 48 F.3d at 1181 (emphases added). In other words, the accused infringer must prove by clear and convincing evidence that the applicant knew of the reference, knew that it was material, and made a deliberate decision to withhold it.

This requirement of knowledge and deliberate action has origins in the trio of Supreme Court cases that set in motion the development of the inequitable conduct doctrine. In each of those cases, the patentee acted knowingly and deliberately with the purpose of defrauding the PTO and the courts. See *Precision*, 324 U.S. at 815–16, 65 S.Ct. 993 (assertion of patent known to be tainted by perjury); *Hazel-Atlas*, 322 U.S. at 245, 64 S.Ct. 997 (a "deliberately planned and carefully executed scheme to defraud" the PTO involving both bribery and perjury); *Keystone*, 290 U.S. at 246–47, 54 S.Ct. 146 (bribery and suppression of evidence).

[9] [10] [11] Intent and materiality are separate requirements. *Hoffmann-La Roche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1359 (Fed.Cir.2003). A district court should not use a "sliding scale," where a weak showing of intent may be found sufficient based on a strong showing of materiality, and vice versa. Moreover, a district court may not infer intent solely from materiality. Instead, a court must weigh the evidence of intent to deceive independent of its analysis of materiality. Proving that the applicant knew of a reference, should have known of its materiality, and decided not to submit it to the PTO does not prove specific intent to deceive. See *Star*, 537 F.3d at 1366 ("the fact that information later found material was not disclosed cannot, by itself, satisfy the deceptive intent element of inequitable conduct").

[12] [13] [14] Because direct evidence of deceptive intent is

rare, a district court may infer intent from indirect and circumstantial evidence. *Larson Mfg. Co. of S.D., Inc. v. Aluminart Prods. Ltd.*, 559 F.3d 1317, 1340 (Fed.Cir.2009). However, to meet the clear and convincing evidence standard, the specific intent to deceive must be “the single most reasonable inference able to be drawn from the evidence.” *Star*, 537 F.3d at 1366. Indeed, the evidence “must be sufficient to *require* a finding of deceitful intent in the light of all the circumstances.” *Kingsdown*, 863 F.2d at 873 (emphasis added). Hence, when there are multiple reasonable inferences that may be drawn, intent to deceive cannot be *1291 found. See *Scanner Techs. Corp. v. ICOS Vision Sys. Corp.*, 528 F.3d 1365, 1376 (Fed.Cir.2008) (“Whenever evidence proffered to show either materiality or intent is susceptible of multiple reasonable inferences, a district court clearly errs in overlooking one inference in favor of another equally reasonable inference.”). This court reviews the district court’s factual findings regarding what reasonable inferences may be drawn from the evidence for clear error. See *Star*, 537 F.3d at 1365.

^[15] Because the party alleging inequitable conduct bears the burden of proof, the “patentee need not offer any good faith explanation unless the accused infringer first ... prove[s] a threshold level of intent to deceive by clear and convincing evidence.” *Star*, 537 F.3d at 1368. The absence of a good faith explanation for withholding a material reference does not, by itself, prove intent to deceive.

VI

In the past, this court has tried to address the proliferation of inequitable conduct charges by raising the intent standard alone. In *Kingsdown*, this court made clear that gross negligence alone was not enough to justify an inference of intent to deceive. 863 F.2d at 876. *Kingsdown* established that “the involved conduct ... must indicate sufficient culpability to *require* a finding of intent to deceive.” *Id.* (emphasis added). This higher intent standard, standing alone, did not reduce the number of inequitable conduct cases before the courts and did not cure the problem of overdisclosure of marginally relevant prior art to the PTO. To address these concerns, this court adjusts as well the standard for materiality.

In *Corona Cord Tire Co. v. Dovan Chemical Corp.*, the Supreme Court considered the materiality of a patentee’s misrepresentation to the PTO. 276 U.S. 358, 373–74, 48

S.Ct. 380, 72 L.Ed. 610 (1928). The patentee had submitted two affidavits, falsely claiming that the invention had been used in the production of rubber goods when in fact only test slabs of rubber had been produced. *Id.* Because the misrepresentation was not the but-for cause of the patent’s issuance, the Court held that it was immaterial and refused to extinguish the patent’s presumption of validity:

Production of rubber goods for use or sale was not indispensable to the granting of the patent. Hence the affidavits, though perhaps reckless, were not the basis for it or essentially material to its issue. The reasonable presumption of validity furnished by the grant of the patent, therefore, would not seem to be destroyed.

Id. at 374, 48 S.Ct. 380. Although *Corona Cord* does not address unclean hands, the precursor to inequitable conduct, it demonstrates the Court’s unwillingness to extinguish the statutory presumption of validity where the patentee made a misrepresentation to the PTO that did not affect the issuance of the patent. *Corona Cord* thus supports a but-for materiality standard for inequitable conduct, particularly given that the severe remedy of unenforceability for inequitable conduct far exceeds the mere removal of a presumption of validity.

^[16] ^[17] ^[18] This court holds that, as a general matter, the materiality required to establish inequitable conduct is but-for materiality. When an applicant fails to disclose prior art to the PTO, that prior art is but-for material if the PTO would not have allowed a claim had it been aware of the undisclosed prior art. Hence, in assessing the materiality of a withheld reference, the court must determine whether the PTO would have allowed the claim if it had been aware of the undisclosed reference. In making this patentability determination, the court should apply the preponderance *1292 of the evidence standard and give claims their broadest reasonable construction. See Manual of Patent Examining Procedure (“MPEP”) §§ 706, 2111 (8th ed. Rev.8, July 2010). Often the patentability of a claim will be congruent with the validity determination—if a claim is properly invalidated in district court based on the deliberately withheld reference, then that reference is necessarily material because a finding of invalidity in a district court requires clear and convincing evidence, a higher evidentiary burden than that used in prosecution at the PTO. However, even if a district court does not invalidate a claim based on a deliberately withheld reference, the reference may be material if it would have blocked patent issuance under the PTO’s different evidentiary standards. See MPEP §§ 706 (preponderance of the evidence), 2111 (broadest reasonable construction).

^[19] ^[20] As an equitable doctrine, inequitable conduct

hinges on basic fairness. “[T]he remedy imposed by a court of equity should be commensurate with the violation.” *Columbus Bd. of Educ. v. Penick*, 443 U.S. 449, 465, 99 S.Ct. 2941, 61 L.Ed.2d 666 (1979). Because inequitable conduct renders an entire patent (or even a patent family) unenforceable, as a general rule, this doctrine should only be applied in instances where the patentee’s misconduct resulted in the unfair benefit of receiving an unwarranted claim. See *Star*, 537 F.3d at 1366 (“[j]ust as it is inequitable to permit a patentee who obtained his patent through deliberate misrepresentations or omissions of material information to enforce the patent against others, it is also inequitable to strike down an entire patent where the patentee committed only minor missteps or acted with minimal culpability”). After all, the patentee obtains no advantage from misconduct if the patent would have issued anyway. See *Keystone*, 290 U.S. at 245, 54 S.Ct. 146 (“The equitable powers of the court can never be exerted in behalf of one ... who by deceit or any unfair means has *gained an advantage*.”) (emphasis added) (internal citations omitted). Moreover, enforcement of an otherwise valid patent does not injure the public merely because of misconduct, lurking somewhere in patent prosecution, that was immaterial to the patent’s issuance.

[21] [22] Although but-for materiality generally must be proved to satisfy the materiality prong of inequitable conduct, this court recognizes an exception in cases of affirmative egregious misconduct. This exception to the general rule requiring but-for proof incorporates elements of the early unclean hands cases before the Supreme Court, which dealt with “deliberately planned and carefully executed scheme[s]” to defraud the PTO and the courts. *Hazel-Atlas*, 322 U.S. at 245, 64 S.Ct. 997. When the patentee has engaged in affirmative acts of egregious misconduct, such as the filing of an unmistakably false affidavit, the misconduct is material. See *Rohm & Haas Co. v. Crystal Chem. Co.*, 722 F.2d 1556, 1571 (Fed.Cir.1983) (“there is no room to argue that submission of false affidavits is not material”); see also *Refac Int’l, Ltd. v. Lotus Dev. Corp.*, 81 F.3d 1576, 1583 (Fed.Cir.1996) (finding the intentional omission of declarant’s employment with inventor’s company rendered the affidavit false and that “[a]ffidavits are inherently material”). After all, a patentee is unlikely to go to great lengths to deceive the PTO with a falsehood unless it believes that the falsehood will affect issuance of the patent. See *id.* at 247, 64 S.Ct. 997 (pointing out that patentee’s lawyers “went to considerable trouble and expense” to manufacture false evidence because they believed it was needed to obtain issuance of the patent). Because neither mere nondisclosure of prior art references to the PTO nor failure to mention *1293 prior art

references in an affidavit constitutes affirmative egregious misconduct, claims of inequitable conduct that are based on such omissions require proof of but-for materiality. By creating an exception to punish affirmative egregious acts without penalizing the failure to disclose information that would not have changed the issuance decision, this court strikes a necessary balance between encouraging honesty before the PTO and preventing unfounded accusations of inequitable conduct.

The concurrence mischaracterizes this exception for affirmative egregious acts by limiting it to the example provided—the filing of an unmistakably false affidavit. Based on this misunderstanding, the concurrence asserts that this court’s test for materiality is unduly rigid and contrary to Supreme Court precedent. In actuality, however, the materiality standard set forth in this opinion includes an exception for affirmative acts of egregious misconduct, not just the filing of false affidavits. Accordingly, the general rule requiring but-for materiality provides clear guidance to patent practitioners and courts, while the egregious misconduct exception gives the test sufficient flexibility to capture extraordinary circumstances. Thus, not only is this court’s approach sensitive to varied facts and equitable considerations, it is also consistent with the early unclean hands cases—all of which dealt with egregious misconduct. See *Precision*, 324 U.S. at 816–20, 65 S.Ct. 993 (perjury and suppression of evidence); *Hazel-Atlas*, 322 U.S. at 240, 64 S.Ct. 997 (manufacture and suppression of evidence); *Keystone*, 290 U.S. at 243, 54 S.Ct. 146 (bribery and suppression of evidence).

The concurrence appears to eschew the use of *any* test because, by definition, under any test for materiality, a district court could not find inequitable conduct in cases “where the conduct in question would not be defined as such [under the test].” Although equitable doctrines require some measure of flexibility, abandoning the use of tests entirely is contrary to both longstanding practice and Supreme Court precedent. Courts have long applied rules and tests in determining whether a particular factual situation falls within the scope of an equitable doctrine. See, e.g., *Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7, 129 S.Ct. 365, 374, 172 L.Ed.2d 249 (2008) (four-factor test for preliminary injunctions); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391, 126 S.Ct. 1837, 164 L.Ed.2d 641 (2006) (four-factor test for permanent injunctions); *Gutierrez v. Waterman S.S. Corp.*, 373 U.S. 206, 215, 83 S.Ct. 1185, 10 L.Ed.2d 297 (1963) (“the test of laches” requires both unreasonable delay and consequent prejudice). Moreover, the Supreme Court has made clear that such tests serve an important purpose in limiting the discretion of district courts.

[C]ourts of equity must be governed by rules and precedents no less than the courts of law ... [because] the alternative is to use each equity chancellor's conscience as a measure of equity, which alternative would be as arbitrary and uncertain as measuring distance by the length of each chancellor's foot....

After all, equitable rules that guide lower courts reduce uncertainty, avoid unfair surprise, minimize disparate treatment of similar cases, and thereby help all litigants....

Lonchar v. Thomas, 517 U.S. 314, 323, 116 S.Ct. 1293, 134 L.Ed.2d 440 (1996) (internal quotations omitted). This court therefore rejects the view that its test—albeit flexible enough to capture varying manifestations of egregious and abusive conduct—is inappropriate in the context of the way inequitable conduct has metastasized.

¹²³¹ This court does not adopt the definition of materiality in PTO Rule 56. As *1294 an initial matter, this court is not bound by the definition of materiality in PTO rules. See *Merck & Co., Inc. v. Kessler*, 80 F.3d 1543, 1549–50 (Fed.Cir.1996) (“[T]he broadest of the PTO’s rulemaking powers ... does NOT grant the Commissioner the authority to issue substantive rules.”); see also 57 Fed.Reg.2021 (Jan. 17, 1992) (The PTO stated that Rule 56 “do[es] not define fraud or inequitable conduct.”). While this court respects the PTO’s knowledge in its area of expertise, the routine invocation of inequitable conduct in patent litigation has had adverse ramifications beyond its effect on the PTO. As discussed above, patent prosecutors, inventors, courts, and the public at large have an interest in reining in inequitable conduct. Notably, both the American Bar Association and the American Intellectual Property Law Association, which represent a wide spectrum of interests, support requiring but-for materiality (which is absent from Rule 56).

This court has looked to the PTO’s Rule 56 in the past as a starting point for determining materiality. See *Am. Hoist*, 725 F.2d at 1363. Rule 56 has gone through several revisions, from the “fraud” standard in its original promulgation in 1949 to the “reasonable examiner” standard in 1977 to the current version, which includes any information that “refutes or is inconsistent with” any position the applicant took regarding patentability. See 37 C.F.R. § 1.56 (1950); 37 C.F.R. § 1.56 (1977); 37 C.F.R. § 1.56 (1992). Tying the materiality standard for inequitable conduct to PTO rules, which understandably change from time to time, has led to uncertainty and inconsistency in the development of the inequitable conduct doctrine. See, e.g., *Digital Control, Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1316 (Fed.Cir.2006) (applying 1977 version of Rule 56); *Bruno Independent Living Aids, Inc. v. Acorn Mobility Servs.*,

Ltd., 394 F.3d 1348, 1352–53 (Fed.Cir.2005) (applying 1992 version of Rule 56). Experience thus counsels against this court abdicating its responsibility to determine the boundaries for inequitable conduct.

This court declines to adopt the current version of Rule 56 in defining inequitable conduct because reliance on this standard has resulted in the very problems this court sought to address by taking this case en banc. Rule 56 provides that information is material if it is not cumulative and:

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

37 C.F.R. § 1.56. Rule 56 further provides that a “prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable ... before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.” *Id.* (emphasis added). The first prong of Rule 56 is overly broad because information is considered material even if the information would be rendered irrelevant in light of subsequent argument or explanation by the patentee. Under this standard, inequitable conduct could be found based on an applicant’s failure to disclose information that a patent examiner would readily agree was not relevant to the prosecution after considering the patentee’s argument. Likewise, the second prong of Rule 56 broadly encompasses anything that could be considered marginally relevant to patentability. If an applicant were to assert that his invention would have been non-obvious, for example, anything bearing any relation to obviousness could be found material under the *1295 second prong of Rule 56. Because Rule 56 sets such a low bar for materiality, adopting this standard would inevitably result in patent prosecutors continuing the existing practice of disclosing too much prior art of marginal relevance and patent litigators continuing to charge inequitable conduct in nearly every case as a litigation strategy.

The dissent’s critique of but-for materiality relies heavily on definitions of materiality in other contexts. Contrary to the implication made in the dissent, however, but-for proof is required to establish common law fraud.

Common law fraud requires proof of reliance, which is equivalent to the but-for test for materiality set forth in this opinion. See 37 C.J.S. *Fraud* § 51 (“the reliance element of a fraud claim requires that the misrepresentation actually induced the injured party to change its course of action”); *Restatement (Second) of Torts* § 525 (1977) (fraud requires that the party “relies on the misrepresentation in acting or refraining from action”); see, e.g., *Exxon Mobil Corp. v. Ala. Dept. of Conservation & Natural Res.*, 986 So.2d 1093, 1116 (Ala.2007) (reliance element of fraud “can be met only if the plaintiff does, or does not do, something that the plaintiff would or would not have done but for the misrepresentation of a material fact”); *Alliance Mortgage Co. v. Rothwell*, 10 Cal.4th 1226, 1239, 44 Cal.Rptr.2d 352, 900 P.2d 601 (Cal.1995) (same); *Luscher v. Empeky*, 206 Neb. 572, 576, 293 N.W.2d 866 (Neb.1980) (same); *Spencer v. Ellis*, 216 Or. 554, 561, 339 P.2d 1116 (Or.1959) (same). The remaining examples in the dissent, where but-for materiality is not required, have limited relevance to inequitable conduct. While but-for materiality may not be required in every context, it is appropriate for inequitable conduct in light of the numerous adverse consequences of a looser standard.

Moreover, if this court were to consider standards of materiality in other contexts, the most analogous area of law is copyright. See *Sony Corp. of Am. v. Univ. City Studios, Inc.*, 464 U.S. 417, 439, 104 S.Ct. 774, 78 L.Ed.2d 574 (1984) (finding it appropriate to draw an analogy between copyrights and patents “because of the historic kinship between patent law and copyright law”). But-for proof is required to invalidate both copyrights and trademarks based on applicant misconduct. See 17 U.S.C. § 411(b)(1) (copyright); *Citibank, N.A. v. Citibanc Group, Inc.*, 724 F.2d 1540, 1544 (11th Cir.1984) (trademarks). The dissent concedes that “but for” materiality is required to cancel a trademark but contends that it is not required to invalidate federal registration of a copyright. Various courts have held otherwise. See 2 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 7.20 [B][1] (rev. ed.2010) (“plaintiff’s failure to inform the Copyright Office of given facts is without substance, to the extent that the Office would have registered the subject work even had it known those facts”). Moreover, the Copyright Act has codified this “but for” requirement, making clear that copyright registration is sufficient to permit an infringement suit, even if the certificate of registration contains inaccurate information, unless “the inaccuracy of the information, if known, would have caused the Register of Copyrights to refuse registration.” 17 U.S.C. § 411(b)(1); see also 2 *Nimmer on Copyright* § 7.20[B][2] (explaining that the materiality “standard [set forth in the 2008 amendment to the Copyright Act] is well in line

with the construction of the Act prior to this amendment”).

VII

^[24] In this case, the district court held the ‘551 patent unenforceable for inequitable conduct because Abbott did not disclose briefs it submitted to the EPO regarding the European counterpart of the ‘382 patent. *Trial Opinion at 1127*. Because *1296 the district court found statements made in the EPO briefs material under the PTO’s Rule 56 materiality standard, not under the but-for materiality standard set forth in this opinion, this court vacates the district court’s findings of materiality. *Id. at 1113, 1115*. On remand, the district court should determine whether the PTO would not have granted the patent but for Abbott’s failure to disclose the EPO briefs. In particular, the district court must determine whether the PTO would have found Sanghera’s declaration and Pope’s accompanying submission unpersuasive in overcoming the obviousness rejection over the ‘382 patent if Abbott had disclosed the EPO briefs.

^[25] The district court found intent to deceive based on the absence of a good faith explanation for failing to disclose the EPO briefs. *Id. at 1113–16*. However, a “patentee need not offer any good faith explanation unless the accused infringer first ... prove[s] a threshold level of intent to deceive by clear and convincing evidence.” *Star*, 537 F.3d at 1368. The district court also relied upon the “should have known” negligence standard in reaching its finding of intent. See *Trial Opinion at 1113* (“Attorney Pope knew or should have known that the withheld information would have been highly material to the examiner”). Because the district court did not find intent to deceive under the knowing and deliberate standard set forth in this opinion, this court vacates the district court’s findings of intent. *Id. at 1113–16*. On remand, the district court should determine whether there is clear and convincing evidence demonstrating that Sanghera or Pope knew of the EPO briefs, knew of their materiality, and made the conscious decision not to disclose them in order to deceive the PTO.

For the foregoing reasons, this court vacates the district court’s finding of inequitable conduct and remands for further proceedings consistent with this opinion. This court also reinstates Parts I, III, and IV of the panel decision reported at 593 F.3d 1289, affirming the district court’s judgment of obviousness, noninfringement, and

anticipation, respectively. The judgment below is

AFFIRMED-IN-PART, VACATED-IN-PART, and REMANDED-IN-PART.

Costs

Each party shall bear its own costs.

O’MALLEY, Circuit Judge, concurring in part and dissenting in part.

Patent practitioners regularly call on this court to provide clear guidelines. They seek to know under precisely what circumstances governing principles will be applied, and precisely how they will be applied. While precision may be in the nature of what patent practitioners do, and the desire for defining rules in the scientific world understandable, the law does not always lend itself to such precision. Indeed, when dealing with the application of equitable principles and remedies, the law is imprecise by design.

I understand and admire the majority’s desire to respond to practitioners’ calls for precision and clarity. I also understand its concern with perceived litigation abuses surrounding assertions of inequitable conduct. I believe, however, that the majority responds to that call and addresses those concerns in ways that fail to acknowledge and remain true to the equitable nature of the doctrine it seeks to cabin.

I respectfully dissent from those portions of the majority opinion which describe the test it directs lower courts to apply in assessing materiality and which vacates and remands for further inquiry the materiality determinations made by the district court in this case. As explained *1297 below, I concur in the remainder of the majority’s decision and judgment.

I.

I concur in the majority’s decision to vacate and remand the judgment of the district court with instructions to

reconsider its finding of inequitable conduct. Specifically, because the district court understandably referred to standards governing its intent determination drawn from our prior case law, the district court should be given the opportunity to assess, in the first instance, whether the evidence, and its credibility determinations, support a finding of a specific intent to deceive. In this regard, like the other dissenters, I agree with the majority’s holding that, as a prerequisite to a finding of inequitable conduct, a district court must find that the conduct at issue is of “sufficient culpability to require a finding of intent to deceive.” *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 876 (Fed.Cir.1988). In making this determination, intent to deceive and materiality must be found separately. District courts may not employ a “sliding scale,” nor may they infer intent from materiality alone.¹ Finally, I agree that a district court may infer intent from indirect and circumstantial evidence, but only where it is “the single most reasonable inference able to be drawn from the evidence.” Maj. Op. at 1290 (quoting *Star Scientific Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1366 (Fed.Cir.2008)).

II.

It is at this point that my views, respectfully, diverge from those of both the majority and the other dissenters. This is so because, when addressing the types of conduct that should be deemed of sufficient concern to allow for a finding of inequitable conduct, both the majority and dissent strain too hard to impose hard and fast rules.

“The essence of equity jurisdiction has been the power of the Chancellor to do equity and to mould each decree to the necessities of the particular case.” *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 312, 102 S.Ct. 1798, 72 L.Ed.2d 91 (1982) (quoting *Hecht Co. v. Bowles*, 321 U.S. 321, 329, 64 S.Ct. 587, 88 L.Ed. 754 (1944)). While courts of equity “must be governed by rules and precedents no less than the courts of law,” *Lonchar v. Thomas*, 517 U.S. 314, 323, 116 S.Ct. 1293, 134 L.Ed.2d 440 (1996), “[f]lexibility rather than rigidity has distinguished” equitable jurisdiction, *Weinberger*, 456 U.S. at 312, 102 S.Ct. 1798. “Equity eschews mechanical rules; it depends on flexibility.” *Holmberg v. Armbrrecht*, 327 U.S. 392, 396, 66 S.Ct. 582, 90 L.Ed. 743 (1946).

Traditional notions of equitable relief apply with equal force in the context of patents. *eBay Inc. v.*

MercExchange, LLC, 547 U.S. 388, 393–94, 126 S.Ct. 1837, 164 L.Ed.2d 641 (2006) (holding that a categorical rule of granting an injunction to a prevailing patent holder abrogates a district court’s discretion in granting equitable relief and runs afoul of traditional principles of equity). We have long recognized that the doctrine of inequitable conduct is based in equity. *Kingsdown*, 863 F.2d at 876 (“[T]he ultimate question of whether inequitable conduct occurred is equitable in nature.”). Despite this longstanding *1298 principle, both the majority and dissenting opinions eschew flexibility in favor of rigidity. Both opinions suggest tests for materiality to apply in all cases. Their respective materiality inquiries are black or white, while equity requires judicial consideration of shades of gray.

The majority defines materiality under a but-for test, with an exception for intentionally false affidavits filed with the PTO.² Maj. Op. at 1291–93. The dissent, on the other hand, defines materiality according to Rule 56. Both tests fail to provide district courts with flexibility to find inequitable conduct in an extraordinary case where the conduct in question would not be defined as such under either test. This result is contrary to the very nature of equity and centuries of Supreme Court precedent. I cannot, accordingly, lend support to either of the immutable tests proposed by my colleagues.

While the majority states that, despite the strictures of the test it adopts, “the unclean hands doctrine remains available to supply a remedy for egregious misconduct like that in the Supreme Court cases,” that statement does not address the concerns I express here.³ Maj. Op. at 1287–88. Since, as the majority painstakingly explains, the doctrine of inequitable conduct we are defining grew out of those “unclean hands” cases, the asserted dichotomy is a false one. See *Consol. Aluminum Corp. v. Fosco Int’l, Ltd.*, 910 F.2d 804, 812 (Fed.Cir.1990) (“Indeed, what we have termed ‘inequitable conduct’ is no more than the unclean hands doctrine applied to particular conduct before the PTO.”) (citations omitted). There is no support—and the majority cites none—for the proposition that inequitable conduct is somehow independent of the unclean hands principles the Supreme Court described and explained in its trilogy of cases. The remainder of the majority opinion makes clear, moreover, that the majority’s purpose, and that of the test it adopts, is to delimit and narrow the contours of the unclean hands doctrine when applied to the application process before the PTO, not to acknowledge flexibility in it.⁴

We should adopt a test that provides as much guidance to district courts and patent applicants as possible, but, in doing so, we may not disregard the equitable nature of the

inquiry at hand. Thus, we must make clear that, while we believe the test we offer encompasses virtually all forms of conduct sufficient to warrant a finding of inequitable conduct, we leave open the possibility that some form of intentional misconduct which we do not currently envision could warrant equitable relief. This approach respects the Supreme Court’s recognition that courts of equity “exercise judgment in light of prior precedent, but *1299 with awareness of the fact that specific circumstances, often hard to predict in advance, could warrant special treatment in an appropriate case.” *Holland v. Florida*, 560 U.S. 631, 130 S.Ct. 2549, 2563, 177 L.Ed.2d 130 (2010).

Consistent with the flexible nature of equity jurisdiction, moreover, we should recognize that determining the proper remedy for a given instance of inequitable conduct is within the discretion of district courts, subject, of course, to statutory constraints. *Keystone Driller Co. v. Gen. Excavator Co.*, 290 U.S. 240, 245–46, 54 S.Ct. 146, 78 L.Ed. 293 (1933) (“[Courts of equity] are not bound by formula or restrained by any limitation that tends to trammel the free and just exercise of discretion.”); *Mills v. Elec. Auto-Lite Co.*, 396 U.S. 375, 386, 90 S.Ct. 616, 24 L.Ed.2d 593 (1970) (“In selecting a remedy the lower courts should exercise the sound discretion which guides the determinations of courts of equity, keeping in mind the role of equity as the instrument for nice adjustment and reconciliation between the public interest and private needs as well as between competing private claims.”) (internal quotations and citations omitted). While we have held previously that a finding of inequitable conduct renders unenforceable all claims of the wrongly procured patent and, in certain circumstances, related patents, this singular remedy is neither compelled by statute, nor consistent with the equitable nature of the doctrine.⁵ Accordingly, I would overrule those cases and hold that, in the exercise of its discretion, a district court may choose to render fewer than all claims unenforceable, may simply dismiss the action before it, or may fashion some other reasonable remedy, so long as the remedy imposed by the court is “commensurate with the violation.” *Columbus Bd. of Educ. v. Penick*, 443 U.S. 449, 465, 99 S.Ct. 2941, 61 L.Ed.2d 666 (1979); see also *Hecht*, 321 U.S. at 329, 64 S.Ct. 587 (“The essence of equity jurisdiction has been the power of the Chancellor to do equity and to mould each decree to the necessities of the particular case.”); *Miller v. French*, 530 U.S. 327, 360, 120 S.Ct. 2246, 147 L.Ed.2d 326 (2000) (“These cases recognize the importance of permitting courts in equity cases to tailor relief ... to the exigencies of particular cases and individual circumstances. In doing so, they recognize the fact that *in certain circumstances justice requires the flexibility necessary to treat different cases*

differently—the rationale that underlies equity itself.”) (Breyer, J., dissenting) (emphasis added). Allowing for flexibility in the remedy would reduce the incentive to use inequitable conduct as a litigation tactic and address many of the concerns that trouble my colleagues and were expressed by Abbott and certain amici in these *en banc* proceedings.⁶

*1300 III.

To provide guidance to district courts to aid in the exercise of their discretion in inequitable conduct inquiries—beyond the Supreme Court’s direction that “any willful act concerning the cause of action which rightfully can be said to transgress equitable standards of conduct is sufficient cause for the invocation of the maxim by the chancellor,” *Precision Instrument Mfg. Co. v. Auto. Maint. Mach. Co.*, 324 U.S. 806, 814–16, 65 S.Ct. 993, 89 L.Ed. 1381 (1945)—I believe such guidance should reflect the concerns expressed by the Supreme Court in the case trilogy from which the doctrine emerged. As the Court said in *Precision*, at minimum, equity requires that, when seeking the public benefit of a government sponsored monopoly, applicants must act “fairly and without fraud or deceit.” *Id.* Similarly, in *Hazel-Atlas Glass Co. v. Hartford-Empire Co.*, 322 U.S. 238, 64 S.Ct. 997, 88 L.Ed. 1250 (1944), the Court found that, regardless of the impact of such conduct on patentability, the doors of equity should be closed to a patentee who presented to the patent office, as impartial, an article it authored. *Id.* at 247, 64 S.Ct. 997.

With this general guidance in mind, I believe conduct should be deemed material where: (1) but for the conduct (whether it be in the form of an affirmative act or intentional non-disclosure), the patent would not have issued (as Chief Judge Rader explains that concept in the majority opinion); (2) the conduct constitutes a false or misleading representation of fact (rendered so either because the statement made is false on its face or information is omitted which, if known, would render the representation false or misleading); or (3) the district court finds that the behavior is so offensive that the court is left with a firm conviction that the integrity of the PTO process as to the application at issue was wholly undermined. In adopting such a test, I also believe we should confirm, as explained above, that the equitable nature of the doctrine demands that this test provide guidance only—albeit firm guidance—to district courts

with respect to the exercise of their discretion in the face of inequitable conduct claims.

For the reasons ably articulated by the majority, I do not believe we should direct district courts to use Rule 56 as the measure of materiality in this context. As the majority points out, among other things, it is both too vague and too broad—leaving room for findings of inequitable conduct in circumstances not sufficiently egregious to fall within the bounds of the Supreme Court trilogy from which the doctrine emerged. I also cannot agree completely with the test proposed by the majority. Given the scope and complexity of PTO proceedings, misconduct can and does occur outside the context of written affidavits. In certain circumstances, regardless of the impact on patent issuance, such misconduct is sufficiently egregious that, when accompanied by the requisite intent to deceive, it could support a finding of inequitable conduct. Indeed, in *Hazel-Atlas*, the article in question was not presented to the PTO through an affidavit. 322 U.S. at 240–41, 64 S.Ct. 997. Both tests, moreover, fail to allow room to address conduct beyond their contours which equity should not ignore.

IV.

Applying the test I propose, or any reasonable test for materiality that comports with Supreme Court precedent, I would affirm the district court’s finding that the *1301 nondisclosure of information in this case was material. Indeed, I believe the omissions here qualify as material under the majority’s “but-for plus” standard and that, even accepting that test as the governing standard, a remand on the issue of materiality is neither necessary nor appropriate.

As the other dissenters note, whether the prior art taught that glucose sensors could be used to test whole blood without a protective membrane was a key focus of the PTO examiner’s patentability inquiry. After requesting permission to submit extrinsic evidence in response to a rejection from the PTO, Abbott submitted a sworn declaration from its expert Dr. Gordon Sanghera accompanied by statements from its counsel Lawrence Pope. Both contained representations to the examiner regarding what they alleged to be the appropriate understanding of the critical prior art reference with which the examiner was concerned. Among other things, they asserted unequivocally that one skilled in the art

would not have read the prior art to say that use of a protective membrane with whole blood samples was optional. Omitted from these declarations was the fact that Abbott had made contrary representations on this same matter to the European Patent Office (“EPO”) in connection with the earlier prosecution of a European patent application. There, Abbott represented that it was “unequivocally clear” that the same prior art language meant that the protective membrane was, in fact, optional.

The district court concluded that these nondisclosures were “highly material” because “they centered on the precise sentence in question [in the prior art reference], its meaning and what it taught.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 565 F.Supp.2d 1088, 1112 (N.D.Cal.2008). More specifically, the district court found:

This is unlike the situation where a reference is already before an examiner who can draw his or her own conclusions as to what it teaches and is able to discount spin offered by counsel. *See Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1379 (Fed.Cir.2008). Although the key sentence itself was indeed before Examiner Shay, the inquiry had shifted to a point of extrinsic evidence. That is, Examiner Shay had acquiesced to Attorney Pope’s request to resort to extrinsic evidence to show that the sentence would have been understood by skilled artisans differently than its words suggested. Having received permission to supply extrinsic evidence, Attorney Pope was duty-bound to present any inconsistent extrinsic information known to him. In the arena of extrinsic evidence, the examiner was unable to fend for himself. He had no way of knowing what, if any, contrary extrinsic information had been left out of the Sanghera declaration. He was completely dependent on Attorney Pope and Dr. Sanghera to fully disclose any extrinsic information, pro and con, known to them on the factual point covered by the submission.

Id. The district court’s materiality conclusions were thorough and correct. They should be affirmed.

V.

I do not weigh in on the policy debate between the majority and the dissenters. There are merits to the concerns expressed by each, and they may be relevant, in varying degrees, to the exercise of a court’s discretion in a

particular case. Policy concerns cannot, however, justify adopting broad legal standards that diverge from doctrines explicated by the Supreme Court. A desire to provide immutable guidance to lower courts and parties similarly is not sufficient to justify the *1302 court’s attempt to corral an equitable doctrine with neat tests.

To the extent there are concerns with litigation abuses surrounding the improper use of this otherwise important doctrine, there are vehicles available to the district court to address those concerns. Careful application of the pleading requirements set forth in *Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312 (Fed.Cir.2009), early case management techniques designed to ferret out and test unsupported inequitable conduct claims, orders to stay discovery or consideration of such claims pending all other determinations in the case, or even sanctions, are all tools district courts can employ where appropriate.

For these reasons, I concur in part in and dissent in part from the decision the majority announces today. I would leave to district courts the discretion to apply this equitable doctrine to the unique circumstances with which they are presented, while encouraging them to keep in sight their obligation to guard against abuses of it.

BRYSON, Circuit Judge, with whom GAJARSA, DYK, and PROST, Circuit Judges, join, dissenting.

I

There is broad consensus that the law of inequitable conduct is in an unsatisfactory state and needs adjustment. In recent years, differing standards have been applied in determining whether particular conduct rises to the level of inequitable conduct sufficient to render a patent unenforceable. That doctrinal uncertainty has had adverse consequences both for patent litigation and for the PTO. In litigation, counterclaims of inequitable conduct have been raised in too many cases and have proved difficult to resolve. In the PTO, the lack of a clear and uniform standard for inequitable conduct has led some patent prosecutors to err on the side of “overdisclosure” in order to avoid the risk of rendering all claims of an otherwise valid patent unenforceable because of the omission of some marginally relevant reference. As a result,

examiners have frequently been swamped with an excess of prior art references having little relevance to the applications before them.

These problems can be traced, at least in part, to doctrinal uncertainty on three points: First, what standard of intent should be applied in assessing an allegation that an applicant has made false representations or failed to disclose material facts to the PTO. Second, what standard of materiality should be applied to such misrepresentations or nondisclosures. Third, whether there should be a “sliding scale” under which a strong showing of either materiality or intent should be able to make up for a weaker showing on the other element.

There is substantial agreement as to the proper resolution of two of those three issues. First, the parties to this case and most of the amici agree that proof of inequitable conduct should require a showing of specific intent to deceive the PTO; negligence, or even gross negligence, should not be enough. Second, the parties and most of the amici agree that a party invoking the defense of inequitable conduct should be required to prove both specific intent and materiality by clear and convincing evidence; there should be no “sliding scale” whereby a strong showing as to one element can make up for weaker proof as to the other.

However, on the remaining issue—the proper standard to apply in determining whether the conduct at issue is sufficiently material to render the patent in suit unenforceable—there is sharp disagreement. That disagreement is what divides the court in this case. The majority takes the position that nondisclosures should be *1303 deemed sufficiently material to trigger the defense of inequitable conduct only if, had the matter in question been disclosed, the applicant would not have obtained a patent. That position, however, marks a significant and, I believe, unwise departure from this court’s precedents. Since its first days, this court has looked to the PTO’s disclosure rule, Rule 56, 37 C.F.R. § 1.56, as the standard for defining materiality in inequitable conduct cases involving the failure to disclose material information. In its current form, that rule provides that information is material not only if it establishes a prima facie case of unpatentability, but also if it refutes or is inconsistent with a position the applicant takes before the PTO with respect to patentability. I would adhere to the materiality standard set forth in the PTO’s disclosure rule for two basic reasons: First, the PTO is in the best position to know what information examiners need to conduct effective and efficient examinations, i.e., what information is material to the examination process. Second, the higher standard of materiality adopted by the majority will not provide

appropriate incentives for patent applicants to comply with the disclosure obligations the PTO places upon them.

Twenty-three years ago, in *Kingsdown Medical Consultants v. Hollister, Inc.*, this court was faced with conflicting precedents regarding the “intent” requirement of the doctrine of inequitable conduct. The court resolved those conflicts in an en banc decision that all members of the court joined. 863 F.2d 867 (Fed.Cir.1988) (en banc). The court held that even proof of “gross negligence” is not sufficient to satisfy the intent to deceive requirement. Instead, the court concluded that in order for particular conduct to justify holding a patent unenforceable, the conduct in question, “viewed in light of all the evidence, including evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive.” *Id.* at 876.

The *Kingsdown* court did not find it necessary to address the proper standard for determining materiality, because that issue had been addressed in earlier cases. Four years before *Kingsdown*, a five-judge panel opinion in *J.P. Stevens & Co. v. Lex Tex Ltd.*, 747 F.2d 1553 (Fed.Cir.1984), had addressed the materiality requirement and made the following observations, which have remained the law until today: First, the court endorsed the principle, previously adopted by our predecessor court, that inequitable conduct is broader than common law fraud. *Id.* at 1559 (citing *Norton v. Curtiss*, 433 F.2d 779, 793 (CCPA 1970)). Second, the court explained that inequitable conduct could be based on the failure to disclose material information as well as the submission of false material information. *Id.* Third, the court stated that the disclosure requirement set forth in PTO Rule 56, 37 C.F.R. § 1.56 (1984), established “the appropriate starting point” because that standard “most closely aligns with how one ought to conduct business with the PTO.” *J.P. Stevens*, 747 F.2d at 1559. In so doing, the court referred to its earlier opinion in *Driscoll v. Cebalo*, 731 F.2d 878, 884 (Fed.Cir.1984), where the court had stated that PTO Rule 56 “essentially represents a codification of the ‘clean hands’ maxim as applied to patent applicants.” Moreover, just a year before the decision in *Kingsdown*, the court in *Gardco Manufacturing, Inc. v. Herst Lighting Co.*, 820 F.2d 1209, 1214 (Fed.Cir.1987), had reiterated that Rule 56 set forth the appropriate standard for determining the materiality of undisclosed information in an inequitable conduct case.

Since that time there have been occasional departures from the holding in *Kingsdown* as to the requisite level of *1304 intent to establish inequitable conduct. As to materiality, however, the court has consistently held that the PTO’s Rule 56 sets the proper baseline for

determining materiality, although there has been some variation in our decisions with regard to which version of the PTO's rule applies in particular cases.

The appropriate cure for departures from the principles of inequitable conduct that were put in place at the time of *Kingsdown* would be to reaffirm those principles, as summarized above. The majority, however, has taken a far more radical approach. With respect to the issue of materiality, the majority has adopted a test that has no support in this court's cases and is inconsistent with a long line of precedents dating back to the early years of this court. The effect of the majority's new test, moreover, does not merely reform the doctrine of inequitable conduct, but comes close to abolishing it altogether. I respectfully dissent from that aspect of the court's decision. In my view, what is needed is not to jettison the doctrine of inequitable conduct, but simply to reaffirm the principles set down in the early years of this court in light of the provisions of the current PTO disclosure rule, and require adherence to those principles. As applied to the duty of an applicant or attorney to disclose material information in the course of prosecuting a patent application, those principles can be summarized as follows:

1. Inequitable conduct requires proof, by clear and convincing evidence, that the applicant or attorney intended to mislead the PTO with respect to a material matter.
2. Materiality is measured by what the PTO demands of those who apply for and prosecute patent applications. The disclosure standard that the PTO expects those parties to comply with is set forth in the current version of the PTO's Rule 56. Under that standard, inequitable conduct requires proof that the information at issue either established, by itself or in combination with other information, a prima facie case of unpatentability, or was inconsistent with a position taken by the applicant before the PTO with respect to patentability.
3. Intent to mislead and materiality must be separately proved. There is no "sliding scale" under which the degree of intent that must be proved depends on the strength of the showing as to the materiality of the information at issue.¹

These principles not only are consistent with our law on inequitable conduct but, if implemented consistently, should be sufficient to address the practical problems that have arisen under the current regime. While the majority is correct that inequitable conduct claims have been raised too often in the past, there are less Draconian means of

addressing that problem than those proposed by the majority. First, the refinements to the doctrine suggested here would be likely to significantly reduce the frequency with which the defense is raised. Second, this court has recently held that the strict pleading requirements of Fed.R.Civ.P. 9(b) apply to counterclaims of inequitable conduct, requiring detailed factual ***1305** averments and not merely notice pleading with respect to such claims. Such pleading requirements are likely to discourage baseless counterclaims. See *Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312, 1326–29 (Fed.Cir.2009). Third, assertions of inequitable conduct that lack factual and legal support can be controlled by trial courts through application of the sanctions provided by Fed.R.Civ.P. 11. Finally, as this court has repeatedly held, the doctrine of inequitable conduct is an equitable doctrine, and even when the elements of intent and materiality are satisfied, it remains for the district court to determine, in the exercise of its equitable judgment, whether, "in light of all the particular circumstances, the conduct of the patentee is so culpable that its patent should not be enforced." *LaBounty Mfg., Inc. v. U.S. Int'l Trade Comm'n*, 958 F.2d 1066, 1070 (Fed.Cir.1992).

With regard to the problem of "over-disclosure" of large numbers of marginally relevant references in the course of patent prosecution, the PTO in its amicus brief expresses confidence that strict judicial adherence to the "clear and convincing" standard by which accused infringers must prove specific intent to deceive the PTO will largely solve that problem. Since the problem of over-disclosure directly affects the PTO, there is no reason not to credit the PTO's assertion that a tightening of the intent element of the inequitable conduct doctrine should be sufficient to address the problem and that a drastic modification of the materiality element not only is not required, but would be contrary to the PTO's interest in efficient examinations.

II

The majority holds that a failure to disclose information is "material" for purposes of inequitable conduct only if it satisfies the "but for" test; i.e., the conduct must be such that, but for the conduct, the claims would have been found unpatentable. This is not a tweak to the doctrine of inequitable conduct; it is fundamental change that would have the effect of eliminating the independent role of the doctrine of inequitable conduct as to disclosure obligations except in limited circumstances. This court

has repeatedly rejected the “but for” test as too restrictive in light of the policies served by the inequitable conduct doctrine. See *Merck & Co. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1421 (Fed.Cir.1989); see also *Purdue Pharma L.P. v. Endo Pharms. Inc.*, 438 F.3d 1123, 1132 (Fed.Cir.2006); *Hoffmann–LaRoche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1368 (Fed.Cir.2003); *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1179–80 (Fed.Cir.1995); *A.B. Dick Co. v. Burroughs Corp.*, 798 F.2d 1392, 1396 (Fed.Cir.1986). Those policies dictate that it should continue to do so.

As the PTO persuasively argues in its amicus brief, the “but for” standard for materiality is too restrictive to serve the purposes that the doctrine of inequitable conduct was designed to promote. If a failure to disclose constitutes inequitable conduct only when a proper disclosure would result in rejection of a claim, there will be little incentive for applicants to be candid with the PTO, because in most instances the sanction of inequitable conduct will apply only if the claims that issue are invalid anyway. For example, under the “but for” test of materiality, an applicant considering whether to disclose facts about a possible prior use of the invention would have little reason to disclose those facts to the PTO. If the applicant remained silent about the prior use, the patent issued, and the prior use was never discovered, the applicant would benefit from the nondisclosure. But even if the prior use was discovered during litigation, the failure to disclose would be held to constitute inequitable conduct only if the *1306 prior use otherwise rendered the relevant claims invalid. The applicant would thus lose nothing by concealing the prior use from the PTO, because he would not be at risk of losing the right to enforce an otherwise valid patent.

In that situation, particularly if the opportunity to obtain a valuable patent is at stake, there will be no inducement for the applicant to be forthcoming. If the applicant withholds prior art or misleadingly discloses particular matters and succeeds, he obtains a patent that would not have issued otherwise. Even if the nondisclosure or misleading disclosure is later discovered, under the majority’s rule the applicant is no worse off, as the patent will be lost only if the claims would otherwise be held invalid. So there is little to lose by following a course of deceit. It is no indictment of the uprightness and professionalism of patent applicants and prosecutors as a group to say that they should not be subjected to an incentive system such as that. After all, it has long been recognized that “an open door may tempt a saint.” Given the large stakes sometimes at issue in patent prosecutions, a regime that ensures that a dishonest but potentially profitable course of action can be pursued with essentially no marginal

added risk is an unwise regime no matter how virtuous its subjects.

It is unrealistic to expect that other means will provide an effective deterrent to ensure that material information will not be withheld during patent prosecutions. The PTO advises us that the prospect of enforcing the duty of disclosure other than through the threat of inequitable conduct claims is not possible or practical. The prospect of agency disciplinary action for disclosure violations is unrealistic, the PTO explains, because the Office is required by statute to file any charges within five years, see 28 U.S.C. § 2462, and it seldom learns of inequitable conduct within that period of time. In addition, the PTO explains that it rarely has access to relevant facts regarding inequitable conduct, because it lacks investigative resources. As a result, the PTO has concluded that a court is the best forum in which to consider alleged breaches of the disclosure duty in the context of an inequitable conduct defense. See Patent and Trademark Office Implementation of 37 C.F.R. § 1.56, 1095 Off. Gaz. Pat. & Trademark Office 16 (Oct. 11, 1988).

III

Aside from its practical infirmities, the “but for” standard adopted by the majority is inconsistent with the duty that the Supreme Court and the PTO have both described as applying to those who seek patents in the ex parte application process.

A

The doctrine of inequitable conduct has its origins in a trilogy of Supreme Court decisions dating back to the 1930s. The first of the three cases, *Keystone Driller Co. v. General Excavator Co.*, 290 U.S. 240, 54 S.Ct. 146, 78 L.Ed. 293 (1933), applied the equitable principle of “unclean hands” in a case in which a patentee’s representative had obtained a false affidavit and taken other steps to avoid the disclosure of a possibly invalidating prior use of the patented invention. The patentee obtained a favorable decree in an infringement

action against a different defendant and then relied on that decree in obtaining preliminary injunctions against the defendants in the cases before the Court.

The Supreme Court found the connection between earlier and later cases to be sufficient “to show that plaintiff did not come with clean hands” in the later cases. Based on that finding, the Court concluded that the previous misconduct justified the *1307 dismissal of the complaints in those cases. In reaching that determination, the Court did not find it necessary to decide whether the evidence of prior use that the plaintiff had suppressed would have had the effect of invalidating the patent. It was enough that the improper conduct had “immediate and necessary relation to the equity [that the patentee sought] in respect of the matter in litigation.” 290 U.S. at 245, 54 S.Ct. 146.

A decade later, in *Hazel-Atlas Glass Co. v. Hartford-Empire Co.*, 322 U.S. 238, 64 S.Ct. 997, 88 L.Ed. 1250 (1944), the Supreme Court again held a patent unenforceable, this time in part because of misconduct by the patentee before the Patent Office in obtaining the patent. The patentee, encountering resistance to issuance of the patent by the Patent Office, arranged for the publication of an article in a trade publication that described the invention as a remarkable advance in the field. The article purported to be the product of a disinterested party, even though it was actually written by one of the patentee’s lawyers. The patent ultimately issued. The article was also used in court, where it assisted the patentee in obtaining a favorable judgment from an appellate court. The patentee subsequently went to considerable lengths to ensure that the truth regarding the authorship of the article would not emerge. The efforts at concealment failed, however, and the accused infringer sought relief in the lower court based on the misconduct.

Because the misconduct was discovered after the expiration of the term of court during which the judgment in question was entered, the Supreme Court invoked the doctrine of after-discovered fraud, which permitted a court to revisit a judgment even after the end of the term in which it was entered, if the circumstances “are deemed sufficiently gross to demand a departure from rigid adherence to the term rule.” 322 U.S. at 244, 64 S.Ct. 997. The Court found that standard to be satisfied on the facts before it.

In response to the argument that the article in question was not “basic” to the issues in litigation, the Supreme Court stated that the circumstances did not “call for such an attempted appraisal.” 322 U.S. at 247, 64 S.Ct. 997. The Court explained: “Hartford’s officials and lawyers

thought the article material. They conceived it in an effort to persuade a hostile Patent Office to grant their patent application, and went to considerable trouble and expense to get it published.” *Id.* The Court added that Hartford’s fraud “had its genesis in the plan to publish an article for the deliberate purpose of deceiving the Patent Office.... Had the District Court learned of the fraud on the Patent Office at the original infringement trial, it would have been warranted in dismissing Hartford’s case.” *Id.* at 250, 64 S.Ct. 997. Significantly, the Court did not regard the issue of Hartford’s conduct as turning on whether the fraudulent conduct was the “but for” cause of the issuance of the patent. The Court stated that it would have come to the same conclusion even if the statements from the fraudulently procured article were actually true. *Id.* at 247, 64 S.Ct. 997. “But for” causation was not necessary to finding materiality. Instead, the Court focused on the patentee’s “deliberate purpose of deceiving the Patent Office” as the core reason for refusing to enforce the patentee’s rights in the patent.

A year later, the Supreme Court again addressed the issue of the effect of misconduct during proceedings before the Patent Office on subsequent patent enforcement actions in court. That case, *Precision Instrument Manufacturing Co. v. Automotive Maintenance Machinery Co.*, 324 U.S. 806, 65 S.Ct. 993, 89 L.Ed. 1381 (1945), *1308 arose following an involved sequence of events, the upshot of which was that Automotive obtained rights to a patent knowing that the original applicant had made false statements pertaining to the dates of conception and reduction to practice of the claimed invention. The Supreme Court held the patent unenforceable, applying the doctrine of unclean hands against the patent owner based on its knowledge of the misconduct that occurred during the prosecution of the patent.

The Court explained that the sort of misconduct necessary to trigger a court’s refusal to aid “the unclean litigant” need not be “of such a nature as to be punishable as a crime or as to justify legal proceedings of any character. Any willful act concerning the cause of action which rightfully can be said to transgress equitable standards of conduct is sufficient cause for the invocation of the maxim by the chancellor.” 324 U.S. at 815, 65 S.Ct. 993. The Court added that “where a suit in equity concerns the public interest as well as the private interests of the litigants this doctrine assumes even wider and more significant proportions.” *Id.* The enforcement of a patent, the Court stated, is a matter “concerning far more than the interests of the adverse parties. The possession and assertion of patent rights are ‘issues of great moment to the public.’ ” *Id.* In a statement that has served as the basis for the subsequent development of the doctrine of

inequitable conduct, the Court added that “[t]he far-reaching social and economic consequences of a patent ... give the public a paramount interest in seeing that patent monopolies spring from backgrounds free from fraud or other inequitable conduct.” *Id.* at 816, 65 S.Ct. 993.

The Court refused to enforce Automotive’s patent because it concluded that Automotive “knew and suppressed facts that, at the very least, should have been brought in some way to the attention of the Patent Office.” 324 U.S. at 818, 65 S.Ct. 993. The Court explained, “Those who have applications pending with the Patent Office or who are parties to Patent Office proceedings have an uncompromising duty to report to it all facts concerning possible fraud or inequitable conduct underlying the applications in issue.... Public interest demands that all facts relevant to such matters be submitted formally or informally to the Patent Office, which can then pass upon the sufficiency of the evidence. Only in this way can that agency act to safeguard the public in the first instance against fraudulent patent monopolies.” Because Automotive had prosecuted the patent application and obtained the patent “without ever attempting to reveal to the Patent Office or to anyone else the facts it possessed concerning the application’s fraudulent ancestry,” the Court concluded that Automotive “has not displayed that standard of conduct requisite to the maintenance of this suit in equity.” *Id.* at 819, 65 S.Ct. 993.

As in the *Keystone* and *Hazel–Atlas* cases, the Supreme Court in the *Precision Instrument* case did not look to whether the conduct in question would have rendered the plaintiff’s application unpatentable. In holding all of Automotive’s patents to be unenforceable, the Court found it was enough that the plaintiff had intentionally withheld information from the Patent Office that should have been submitted so that the Patent Office could consider it. There was no suggestion in the Court’s opinion that the dismissal of the action would be appropriate only if, but for the conduct, the patent would not have issued.

The principles set down by the Court in *Keystone*, *Hazel–Atlas*, and *Precision Instrument* can be summarized as follows: (1) the public has a special interest in seeing that patent monopolies “spring *1309 from backgrounds free from fraud or other inequitable conduct”; (2) as a corollary to that public interest, patent applicants “have an uncompromising duty to report to [the Patent Office] all facts concerning possible fraud or inequitable conduct underlying the applications”; (3) all facts relevant to such matters must be submitted to the Patent

Office, “which can then pass upon the sufficiency of the evidence”; (4) the intentional failure to disclose to the Patent Office that a patent application is tainted by fraud is sufficient cause to justify not enforcing the patent; and (5) the misconduct in question need not constitute actionable fraud; it is sufficient if the conduct constitutes a willful act that violates standards of equitable conduct in dealing with the Patent Office.²

Shortly after the decisions in the *Keystone*, *Hazel–Atlas*, and *Precision Instrument* cases, the Supreme Court made a further observation that bears directly on the responsibilities of attorneys and applicants who appear before the PTO. The Court endorsed the statement that, “By reason of the nature of an application for patent, the relationship of attorneys to the Patent Office requires the highest degree of candor and good faith. In its relation to applicants, the Office ... must rely upon their integrity and deal with them in a spirit of trust and confidence....” *Kingsland v. Dorsey*, 338 U.S. 318, 319, 70 S.Ct. 123, 94 L.Ed. 123 (1949). Because the PTO lacks the investigative and research resources to look behind representations by applicants and their counsel, it necessarily relies on those representations as to many facts that arise during the prosecution of patent applications, including experimental results obtained by the applicants, the state of the prior art, and the knowledge of persons of skill in the art in the field in question. Some of these facts will be uniquely in the hands of the applicant *1310 and, as a practical matter, undiscoverable by an examiner at the PTO. For those reasons, the PTO has imposed a duty on applicants to provide examiners with information that is material to patentability.

B

The PTO has defined the disclosure obligation for those involved in patent prosecutions in its Rule 56, which the PTO has promulgated under its statutory authority to establish regulations that “govern the conduct of proceedings in the Office.” 35 U.S.C. § 2(b). When Rule 56 was first promulgated in 1949, the portion of the rule that addressed inequitable conduct provided that “any application fraudulently filed or in connection with which any fraud is practiced or attempted on the Patent Office, may be stricken.” 37 C.F.R. § 1.56 (1950).

The Court of Customs and Patent Appeals construed the

PTO's disclosure rule in its 1970 decision in *Norton v. Curtiss*, 433 F.2d at 779. The court in that case upheld the Commissioner's authority to strike a patent application for fraud on the PTO in violation of the PTO's Rule 56. Interpreting the term "fraud" in Rule 56, the court began by noting that the term should not be limited to the kind of fraud that would be independently actionable as a tort or crime (which the court referred to as "technical fraud"). Instead, the court explained that "fraud" as used in the Rule included "a wider range of 'inequitable' conduct" that would justify holding a patent unenforceable. *Id.* at 793. Defining fraud more broadly for the purpose of Rule 56 was justified, the court ruled, because "applicants before the Patent Office are being held to a relationship of confidence and trust to that agency. The indicated expansion of the concept of 'fraud' manifests an attempt by the courts to make this relationship meaningful." *Id.*

In language paralleling the Supreme Court's discussion in *Kingsland v. Dorsey*, the *Norton* court recognized "a relationship of trust between the Patent Office and those wishing to avail themselves of the governmental grants which that agency has been given authority to issue." 433 F.2d at 793. In light of the ex parte nature of patent prosecution, the number of applications filed, and the limited capacity of the PTO "to ascertain the facts necessary to adjudge the patentable merits of each application," the court stated that the "highest standards of honesty and candor on the part of applicants presenting such facts to the office are ... necessary elements in a working patent system." *Id.* at 794. For that reason, the court approved of "the expansion of the types of misconduct for which applicants will be penalized." *Id.*

In light of those policies, the court explained that the test for materiality "cannot be applied too narrowly if the relationship of confidence and trust between applicants and the Patent Office is to have any real meaning," and that findings of materiality should not be limited to those cases in which the true facts, if they had been known, "would most likely have prevented the allowance of the particular claims at issue." 433 F.2d at 795. In such cases, the claims at issue "would probably be invalid, in any event," and the question whether the patent was unenforceable "would really be of secondary importance." *Id.* Accordingly, the court concluded that a proper interpretation of the materiality element must include factors other than the patentability of the claims at issue, including "the subjective considerations of the examiner and the applicant." *Id.*

In 1977, the PTO substantially revised Rule 56 to make more explicit the disclosure obligations imposed on patent applicants. *1311 Patent Examining and Appeal

Procedures, 41 Fed.Reg. 43,729, 43,730 (proposed Oct. 4, 1976). The 1977 version of the rule imposed a "duty of candor and good faith" on those involved in the preparation or prosecution of patent applications and required them "to disclose to the Office information they are aware of which is material to the examination of the application." The rule defined information as "material" if there was "a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent."

Shortly after this court's creation, the court began addressing inequitable conduct claims raised in the course of patent infringement litigation. From the outset, the court looked to the PTO's Rule 56 as setting an appropriate standard for the materiality prong of the doctrine of inequitable conduct. *See Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1363 (Fed.Cir.1984) ("The PTO 'standard' is an appropriate starting point for any discussion of materiality"; failure to satisfy that disclosure obligation, combined with an intent to deceive the PTO, can render a patent unenforceable); *J.P. Stevens*, 747 F.2d at 1559 (adopting the materiality requirement from Rule 56); *Gardco*, 820 F.2d at 1214 (Rule 56 is "appropriate starting point for determining materiality") (quotation omitted); *Fox Indus., Inc. v. Structural Pres. Sys.*, 922 F.2d 801, 803 (Fed.Cir.1990) (adopting Rule 56 standard for materiality). In particular, the court endorsed the use of that standard as the proper test for materiality when an appropriate level of intent was shown. *See Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 992 (Fed.Cir.1988) ("Nondisclosed or false information is material if there is a substantial likelihood that a reasonable examiner would have considered the omitted reference or false information important in deciding whether to allow the application to issue as a patent."); *Halliburton Co. v. Schlumberger Tech. Corp.*, 925 F.2d 1435, 1440 (Fed.Cir.1991) ("Information is material if there is 'substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.'" (citing the 1977 version of PTO Rule 56).

In the ensuing years, this court has regularly referred to the "reasonable examiner" test as the standard for measuring materiality in cases raising claims of inequitable conduct. *See, e.g., Golden Hour Data Sys., Inc. v. emsCharts, Inc.*, 614 F.3d 1367, 1373–74 (Fed.Cir.2010); *Leviton Mfg. Co. v. Universal Sec. Instruments, Inc.*, 606 F.3d 1353, 1358–59 (Fed.Cir.2010); *Astrazeneca Pharms. LP v. Teva Pharm. USA, Inc.*, 583 F.3d 766, 773 (Fed.Cir.2009); *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1363 (Fed.Cir.2003) (citing cases). Under that test, the

court has consistently ruled that a false statement or nondisclosure may be material for purposes of an inequitable conduct determination even if the invention in question would otherwise be patentable. *See, e.g., Digital Control, Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1314 (Fed.Cir.2006); *Li Second Family Ltd. P'ship v. Toshiba Corp.*, 231 F.3d 1373, 1380–81 (Fed.Cir.2000); *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1322 (Fed.Cir.2000); *A.B. Dick*, 798 F.2d at 1397.

In 1992, the PTO revised Rule 56, adopting what it called a “clearer and more objective definition of what information the Office considers material to patentability.” *Duty of Disclosure*, 57 Fed.Reg.2021, 2023 (Jan. 17, 1992). As revised in 1992, the current version of Rule 56 imposes a duty on individuals associated with the filing and prosecution of an application to disclose to the Office all information known to be material to patentability as defined in ***1312** the rule. Rule 56(a). The rule then states that information is “material” if it is “not cumulative to information already of record or being made of record in the application” and

- (1) It establishes, by itself, or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

The first part of Rule 56(b) requires the applicant to provide information that, at least absent explanation or further supplementation, would compel the conclusion that the invention is unpatentable. The rule explains that a “prima facie case of unpatentability” is established “when the information compels a conclusion that a claim is unpatentable under the preponderance of the evidence, burden-of-proof standard, giving each term its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.” In adopting the rule, the PTO explained that it intended for applicants to submit references, of which they were aware, that would render the pending claims unpatentable over the references. Proposed Rules, 56 Fed.Reg. 37,321, 37,324 (Aug. 6, 1991). The PTO added that it is the role of the examiner, not the applicant, to analyze the sufficiency and weight of

a rebuttal argument. *See id.* The intent standard imposed by Rule 56 and adopted by this court answers the majority’s concerns regarding the breadth of the first part of Rule 56(b). That provision applies only to applicants who act with the specific intent to deceive the PTO by withholding prior art that is so powerful as to render the pending claims invalid in the absence of further explanation.

It is the second part of the rule, Rule 56(b)(2), to which the appellants object. That part of the rule requires the applicant to provide information that is inconsistent with or refutes a position taken by the applicant before the office. Rule 56(b)(2) clearly goes beyond a “but for” test and is therefore the focus of the dispute in this case.

At the time it adopted the 1992 revision to Rule 56, the PTO considered the possibility of adopting a “but for” test of materiality of the sort that the majority has adopted today. The Office rejected that test, concluding that adopting such a narrow standard “would not cause the Office to obtain the information it needs to evaluate patentability so that its decisions may be presumed correct by the courts.” The PTO added that if it did not have the needed information, “meaningful examination of patent applications will take place for the first time in an infringement case before a district court.” *Duty of Disclosure*, 57 Fed.Reg. at 2023.

In the aftermath of that change, this court has frequently treated the PTO’s new version of the rule as setting forth the proper standard for materiality, in cases involving claims of failure to disclose material information, at least for applications processed after 1992. In *Bruno Independent Living Aids, Inc. v. Acorn Mobility Services, Ltd.*, 394 F.3d 1348 (Fed.Cir.2005), the court quoted the 1992 version of Rule 56 and held that for patents prosecuted while that version of the rule was in effect, “we evaluate the materiality of the [undisclosed matter] under the standard set forth in the applicable amended rule.” *Id.* at 1352–53; *see also Hoffmann–LaRoche*, 323 F.3d at 1368 n. 2. The court added that “we give deference to the PTO’s formulation at the time an application is being prosecuted before an examiner ***1313** of the standard of conduct it expects to be followed in proceedings in the Office.” *Bruno*, 394 F.3d at 1353; *see also Bd. of Educ. v. Am. Bioscience, Inc.*, 333 F.3d 1330, 1343 (Fed.Cir.2003); *Purdue Pharma L.P.*, 438 F.3d at 1129; *Monsanto Co. v. Bayer Bioscience N.V.*, 514 F.3d 1229, 1237 (Fed.Cir.2008); *Taltech Ltd. v. Esquel Enters. Ltd.*, 604 F.3d 1324, 1333 (Fed.Cir.2010). As it did before 1992, the court has continued to make clear that it does not apply a “but for” test for materiality. *See Golden Hour Data Sys.*, 614 F.3d at 1374; *Hoffmann–LaRoche*, 323

F.3d at 1368; *Molins PLC*, 48 F.3d at 1179–80.

On occasion, when addressing the issue of materiality, this court has referred to both the 1977 standard and the 1992 standard that supplanted it as pertinent to the definition of materiality. See, e.g., *Digital Control*, 437 F.3d at 1316. The court has done so in light of the fact that, as the PTO has explained, the 1992 standard was not meant to signal a sharp departure from the 1977 standard. Yet while the two standards were not meant to be dramatically different, the court has recognized that the PTO regards the 1992 standard as setting forth a clearer and more precise statement of the disclosure necessary to conducting efficient examinations. See *Rothman v. Target Corp.*, 556 F.3d 1310, 1323 (Fed.Cir.2009); *Purdue Pharma L.P.*, 438 F.3d at 1129; *Pharmacia Corp. v. Par Pharm., Inc.*, 417 F.3d 1369, 1373 (Fed.Cir.2005).

The PTO has explained that the 1992 amendment was proposed “to address criticism concerning a perceived lack of certainty in the materiality standard.” M.P.E.P. § 2001.04. The revised rule was intended “to provide greater clarity and hopefully minimize the burden of litigation on the question of inequitable conduct before the Office, while providing the Office with the information necessary for effective and efficient examination of patent applications.” *Id.* Moreover, in its brief in this case the PTO has urged this court to adopt the standard set forth in the current PTO Rule 56 as the standard for material nondisclosures rather than referring to both the 1992 standard and the “reasonable examiner” standard from the 1977 version of the Rule.

Because the PTO is the best judge of what information its examiners need to conduct effective examinations, the PTO’s definition of materiality is entitled to deference in determining whether the failure to disclose particular information during patent prosecution constitutes inequitable conduct. Moreover, because the PTO has refined the materiality standard in setting forth what it expects of applicants and their representatives, there is no need for courts to apply a broader test of materiality in adjudicating inequitable conduct claims, as doing so could at least theoretically result in the imposition of sanctions for a failure to disclose matters that the PTO does not require to be disclosed.³ *1314 This is not to suggest that any disclosure requirement that the PTO might have devised would serve as a predicate for an inequitable conduct charge. Because inequitable conduct is an equitable doctrine applied by courts, and not simply a mechanism for judicial enforcement of PTO rules, the scope of the court-made doctrine is not inseparably tied to the breadth of the PTO’s disclosure rules. However, the basic purposes of both the inequitable conduct doctrine

and Rule 56 are the same, and the disclosure duties that the PTO imposes on applicants, which are defined by Rule 56, are reasonably calculated to produce the disclosure necessary to promote efficient conduct of examinations and to discourage the types of omissions and misrepresentations that (if made intentionally) raise equitable concerns. In these circumstances, considerations of efficiency and economy encourage us to embrace the PTO’s approach. So long as it reasonably aligns with our own equitable calculus, we should defer to the PTO’s assessment of its needs and treat intentional breaches of the PTO’s disclosure rules as providing a basis for a finding of inequitable conduct. See *Bruno Indep. Living*, 394 F.3d at 1353.

C

The materiality standard set forth in Rule 56, as adopted in 1977 and refined in 1992, is not an idiosyncratic contrivance of the PTO; quite the contrary, it is consistent with the materiality standard that is applied in a wide variety of other analogous contexts. Although the relationship between the PTO and patent applicants is unusual in our law, it is nonetheless appropriate to look to the way the concept of materiality is applied in other areas, as disclosure obligations and requirements of candor are imposed on parties in a wide variety of settings.

Securities law provides a particularly instructive analogy, as proxy issuers and corporate insiders often have access to information relevant to a stockholder’s decision that even the most diligent investor could not discover. Similarly, a patent applicant is often in a better position than the examiner to know of relevant art or potentially invalidating circumstances, such as prior use. Notably, in the securities law context, a nondisclosure is typically regarded as material without the need to prove reliance. Thus, for example, in the case of those who have an affirmative *1315 duty of disclosure to investors under the securities laws and who fail to comply with that duty, the Supreme Court has held that “positive proof of reliance is not a prerequisite to recovery. All that is necessary is that the facts withheld be material in the sense that a reasonable investor might have considered them important in the making of [the investment] decision.” *Affiliated Ute Citizens v. United States*, 406 U.S. 128, 153–54, 92 S.Ct. 1456, 31 L.Ed.2d 741 (1972). The Supreme Court recently reaffirmed that standard in

Matrixx Initiatives, Inc. v. Siracusano, — U.S. —, 131 S.Ct. 1309, 179 L.Ed.2d 398 (2011). In a passage that addressed concerns similar to those raised in this case, the Court explained that it had adopted the “reasonable investor” standard to ensure that investors would have access to information important to their investment decisions, while being “careful not to set too low a standard of materiality, for fear that management would bury the shareholders in an avalanche of trivial information.” *Id.* at 1318 (quotations and citations omitted).

The Supreme Court has adopted a similar materiality standard—and rejected a “but for” test for materiality—in the context of section 14(a) of the Securities Exchange Act of 1934, regarding proxy solicitations. *See TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 96 S.Ct. 2126, 48 L.Ed.2d 757 (1976). There, the Court stated that an omitted fact is material “if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote.” *Id.* at 449, 96 S.Ct. 2126. Significantly, for our purposes, the Court added that the proper standard

does not require proof of a substantial likelihood that disclosure of the omitted fact would have caused the reasonable investor to change his vote. What the standard does contemplate is a showing of a substantial likelihood that, under all the circumstances, the omitted fact would have assumed actual significance in the deliberations of the reasonable shareholder.

Id.

Even in criminal proceedings that require proof of materiality, such as prosecutions under the federal mail and wire fraud statutes, 18 U.S.C. §§ 1341, 1343, a “but for” test of materiality is not applied. Those laws penalize not only affirmative misrepresentations, but also the concealment of material facts. *United States v. Olatunji*, 872 F.2d 1161, 1167 (3d Cir.1989); *United States v. O’Malley*, 707 F.2d 1240, 1247 (11th Cir.1983). When a charge of mail or wire fraud is based on the nondisclosure of material information in violation of a duty to disclose, proof of materiality does not require a showing of actual reliance on the part of the victim; all that is required is proof that the nondisclosure or concealment be capable of influencing the intended victim. *See Neder v. United States*, 527 U.S. 1, 16, 24–25, 119 S.Ct. 1827, 144 L.Ed.2d 35 (1999). *See also United States v. Riley*, 621 F.3d 312, 332–33 (3d Cir.2010) (nondisclosed relationship between mayor and purchaser of city property was material “even if the relationship would not have per se barred [the purchase].”); *United States v. Szur*, 289 F.3d 200, 211–12 (2d Cir.2002) (securities broker owed duty to customers to disclose that broker would earn

“exorbitant” commission on trades; such information was material for the purpose of the wire fraud statute because it would have been “relevant to a customer’s decision to purchase the stock”); *United States v. Bronston*, 658 F.2d 920, 926 (2d Cir.1981) (concealment of information that defendant is under a duty to disclose is material if the nondisclosure “could or does result in harm” to the victim).

The same principles have been applied to nondisclosures of material information *1316 in civil matters, even civil matters that have been regarded as having grave personal consequences. In a denaturalization proceeding, for example, a “concealment or misrepresentation” made in the course of the naturalization process is considered “material” under 8 U.S.C. § 1427(a) if it has “a natural tendency to influence the decisions of the Immigration and Naturalization Service”; it is not necessary to show that the nondisclosure or misrepresentation in question actually had such an effect. *See Kungys v. United States*, 485 U.S. 759, 772, 108 S.Ct. 1537, 99 L.Ed.2d 839 (1988). The Supreme Court noted in that case that it “has never been the test of materiality that the misrepresentation or concealment would *more likely than not* have produced an erroneous decision, or even that it would *more likely than not* have triggered an investigation.” *Id.* at 771, 108 S.Ct. 1537 (emphasis in original).

Even with respect to the common law action for fraud, deceit, and misrepresentation, which is more exacting than the doctrine of inequitable conduct, see *J.P. Stevens & Co.*, 747 F.2d at 1559, the “but for” test does not apply to the element of materiality. In that setting, as the Restatement of Torts explains, a matter is material if “a reasonable man would attach importance to its existence or nonexistence in determining his choice of action,” or if the maker of the representation “knows or has reason to know that its recipient regards or is likely to regard the matter as important in determining his choice of action.” *Restatement (Second) of Torts* § 538 (1977); *see Neder v. United States*, 527 U.S. 1, 22 & n. 5, 119 S.Ct. 1827, 144 L.Ed.2d 35 (1999) (citing the Restatement as setting forth the materiality requirement for common-law fraud). In order for a material misrepresentation to satisfy the causation requirement needed for an award of damages, it is necessary for the plaintiff to show reliance on the misrepresentation. However, the “but for” test does not apply even to tort actions for damages, as it is not necessary for the plaintiff to show “that he would not have acted or refrained from acting as he did unless he had relied on the representation.” *Restatement (Second) of Torts* § 546, cmt. b. In none of these settings has the test for materiality been set at the high “but for” level adopted

by the majority in this case.⁴

*1317 The course charted by the majority is thus contrary to the Supreme Court decisions that gave rise to the doctrine of inequitable conduct, to a long line of our own precedent, and to the principles of materiality that courts have applied in other contexts. Under this court's new rule, an applicant who conceals information with the intent to deceive the PTO will be free to enforce his patent unless it can be proved by clear and convincing evidence that the patent would not have issued but for the fraud. Even though the majority justifies its new rule in part by asserting that it will improve the prosecution of patents before the PTO, I am convinced that the new rule is likely to have an adverse impact on the PTO and the public at large, a view that—significantly—is shared by the PTO itself.

IV

The facts of this case, as found by the district court, illustrate why the materiality standard of Rule 56 is a suitable test for inequitable conduct claims based on disclosure violations. A central issue during the examination that led to the issuance of the '551 patent was whether the prior art had taught that glucose sensors could be used to test whole blood without a protective membrane. The examiner focused on whether the prior art '382 patent taught the use of sensors without membranes. On its face, the '382 patent seemed to teach that sensors could be used without membranes when testing whole blood because the specification of the '382 patent, when discussing the use of sensors with whole blood, stated the following:

Optionally, but preferably when being used on live blood, a protective membrane surrounds both the enzyme and the mediator layers, permeable to water and glucose molecules.

'382 patent, col. 4, ll. 63–66. A central issue before the examiner was whether the use of the term “optionally” in that passage indicated that it was possible to use the sensors in whole (or live) blood without a protective membrane.

The district court found that the persons involved in prosecuting the '551 application, Abbott's attorney Lawrence Pope and its expert, Dr. Gordon Sanghera, made representations to the examiner that the pertinent

passage in the '382 patent should not be taken at face value. In particular, Dr. Sanghera submitted a declaration in which he stated that even though the '382 patent referred to the use of a protective membrane surrounding the enzyme and mediator layers of the glucose meter as “optionally, but preferably” present, “one skilled in the art would have felt that an active electrode comprising an enzyme and a mediator would require a protective membrane if it were to be used with a whole blood sample.” For that reason, he stated, he was “sure that one skilled in the art would not read [the '382 patent] to teach that the use of a protective membrane with a whole blood sample is optionally or merely preferred.” Mr. Pope, the prosecuting attorney, added his own remarks *1318 when submitting Dr. Sanghera's declaration. He stated: “One skilled in the art would not have read the disclosure of the ['382 patent] as teaching that the use of a protective membrane with whole blood samples was optional. He would not, especially in view of the working examples, have read the optionally, but preferably language ... as a technical teaching but rather mere patent phraseology.” Mr. Pope added: “There is no teaching or suggestion of unprotected active electrodes for use with whole blood specimens in [the '382] patent or the other prior art of record in this application.” Shortly after those submissions were made, the examiner allowed the claims for a membraneless sensor.

The problem, the district court found, is that Abbott had made directly contradictory representations to the European Patent Office (“EPO”) concerning the teaching of the '382 patent in connection with the prosecution of a European patent application and had not disclosed those contradictory representations to the PTO. Before the EPO, Abbott represented that the European counterpart to the '382 patent referred to a “protective membrane optionally utilized with the glucose sensor of the patent,” and that the membrane was “preferably to be used with in vivo measurements.” With specific reference to the language from the patent reciting the use of the protective membrane “optionally, but preferably when being used on live blood,” Abbott told the EPO: “It is submitted that this disclosure is unequivocally clear. The protective membrane is optional, however, it is preferred when used on live blood in order to prevent the larger constituents of the blood, in particular erythrocytes from interfering with the electrode sensor.”

The district court found that Abbott's representations to the EPO contradicted its representations to the PTO, made through Dr. Sanghera and Mr. Pope. The court's finding on that issue, made after a detailed analysis of the representations to the two bodies, cannot be held to be clearly erroneous. The district court also found that

Abbott's failure to disclose to the examiner that it had made inconsistent statements to the EPO regarding the teaching of the '382 patent was highly material. In particular, the court found that the failure to disclose the inconsistency in those statements was the kind of nondisclosure covered by PTO Rule 56, as being nondisclosure of information "inconsistent with a position the applicant takes in ... [a]sserting an argument of patentability." That finding, too, cannot be regarded as clearly erroneous in light of the central role of the pertinent portion of the '382 patent in the examination of the application that led to the issuance of the '551 patent.

Turning to the issue of intent, the district court found that Abbott's failure to disclose material information was intentional, i.e., it was made with the specific intent to deceive the PTO. The district court heard live testimony from Mr. Pope and Dr. Sanghera and conducted a detailed analysis of their testimony in light of the record. Based on that analysis, the court concluded that their efforts to justify their conduct were unpersuasive. The court found that Mr. Pope and Dr. Sanghera were aware of the contrary representations made to the EPO and consciously chose to withhold them from the PTO. The court carefully considered their explanations for their failure to disclose the references and found each witness's explanation to be lacking. The court discredited Mr. Pope's explanation that he understood the term "unequivocally clear" in the EPO submission to relate to the permeability of the membrane, not to the text immediately following the words "unequivocally clear," where it is plainly stated that the membrane is optional. The court was *1319 not persuaded by Mr. Pope's statement that he believed "optionally, but preferably" meant, in the context of patents, "optionally, but always."

The court then considered possible alternative reasons for Mr. Pope's decision not to disclose the contradictory EPO statements, such as the possibility that Mr. Pope had misunderstood the meaning of the terms "whole blood" and "live blood." Ultimately, however, the district court could identify no plausible reason for the nondisclosure and therefore found that Mr. Pope had acted with deceptive intent. That finding, based on the court's consideration of Mr. Pope's demeanor and overall credibility, as well as the court's analysis of the record as a whole, cannot be said to be clearly erroneous.

For similar reasons, the court found that Dr. Sanghera also acted with intent to deceive the PTO. The court considered and rejected the possibility that Dr. Sanghera believed that Mr. Pope, Abbott's counsel before the PTO, would disclose the material information. The court began by finding that Dr. Sanghera's declaration before the PTO

contained representations that were misleading by omission. The court explained that finding as follows:

He did not have to take this extra step. Having done so, he was obligated to avoid intentional deception. His sworn statements to the PTO about the meaning of the "optionally but preferably" sentence were known by him to be inconsistent with his own company's statements to the EPO—statements he had himself helped craft.

As to Dr. Sanghera's testimony that he believed that statements he made to the PTO did not contradict the statements made to the EPO, the court found that Dr. Sanghera knew that a representation had been made to the EPO that the '326 patent did not require a membrane when used with whole blood. Noting that Dr. Sanghera's trial testimony had been impeached by his prior inconsistent statements on certain points, and finding that Dr. Sanghera exhibited an "unconvincing trial demeanor," the district court found that he acted with the requisite intent to deceive. As in the case of Mr. Pope, the district court's findings as to Dr. Sanghera are not clearly erroneous.

Viewed in light of the district court's findings, this case is a compelling one for applying the principles of inequitable conduct. The district court found that Abbott's representatives deliberately withheld material from the PTO that directly refuted Abbott's contention that one skilled in the art would have believed that the '382 patent taught that a membrane was required for whole blood analysis. Abbott's inconsistent position on the teachings of this critical reference falls squarely within the scope of information of the sort referred to in PTO Rule 56(b)(2), i.e., information that "refutes, or is inconsistent with, a position the applicant takes in ... [a]sserting an argument of patentability." Given the examiner's focus on the issue of whether the protective membrane in the prior art patent was optional or not, the issue was of critical importance in the prosecution of the application that issued as the '551 patent, even though the undisclosed information, if revealed, may not have resulted in the rejection of the claims at issue. Accordingly, the district court made all the findings necessary to support its holding that the '551 patent was unenforceable for inequitable conduct.⁵ Because *1320 the district court's factual findings are not clearly erroneous and because its legal analysis comports with the proper role of the doctrine of inequitable conduct in patent law, the district court's judgment that the '551 patent is unenforceable for inequitable conduct should be affirmed.

I respectfully dissent.

All Citations

649 F.3d 1276, 99 U.S.P.Q.2d 1065

Footnotes

- 1 While I join this portion of the majority opinion (Part V), I do so with the understanding that the majority does not hold that it is impermissible for a court to consider the level of materiality as circumstantial evidence in its intent analysis. As in all other legal inquiries involving multiple elements, the district court may rely on the same items of evidence in both its materiality and intent inquiries. A district court must, however, reach separate conclusions of intent and materiality and may not base a finding of specific intent to deceive on materiality alone, regardless of the level of materiality.
- 2 The majority responds to this characterization, and to the general criticism in this opinion, by defining its test more broadly and acknowledging a degree of flexibility within its four corners. For that, I applaud the majority. I do not think, however, that this additional explanation is sufficient to address all of the concerns expressed in this opinion. I remain of the view that the test I propose here is the most consistent with the doctrine's origins.
- 3 Indeed, this language raises some additional concerns. If "unclean hands" remains available in cases of PTO misconduct, charges of unclean hands could simply supplant the very allegations of inequitable conduct the majority seeks to curb.
- 4 At the other end of the spectrum, the dissent's acknowledgement that a district court retains discretion *to decline* to find inequitable conduct even in the face of evidence of materiality and intent is similarly insufficient to undercut the unyielding nature of the test for inequitable conduct it adopts. It clearly does not allow, for instance, for a finding of inequitable conduct for conduct not encompassed by Rule 56.
- 5 While the 1952 Act codified the defense of unclean hands in paragraph (1) of 35 U.S.C. § 282, it did not specify a remedy. *See* 35 U.S.C. § 282 (providing that "unenforceability" is a defense to an infringement action); P.J. Federico, "Commentary on the New Patent Act," 75 J. Pat. & Trademark Off. Soc'y 161, 215 (1993) (explaining that paragraph (1) includes "equitable defenses such as laches, estoppel and unclean hands"). The statute, thus, provides no guidance as to whether, in its equitable discretion, a court may render some, but not all, claims unenforceable. In *J.P. Stevens & Co. v. Lex Tex, Ltd.*, 747 F.2d 1553 (Fed.Cir.1984), we cited cases collected from a treatise for the proposition that inequitable conduct renders all of a patent's claims unenforceable. *Id.* at 1561. None of those cases, however, are binding on this court and, for the reasons stated above, I find this proposition inconsistent with the power of the Chancellor to "mould" each decree to the necessities of the particular case.
- 6 One of the evils described by Abbott and amici is the possibility of an order barring enforcement of a patent based on misrepresentation of an applicant's "small entity status." To the extent unenforceability may be too harsh in such circumstances—a point on which I do not opine—district courts would have discretion to fashion some lesser remedy to address that form of intentional deception.
- 1 It is important to distinguish between relaxing the required proof of intent if the proof of materiality is strong, which is impermissible, as opposed to considering the degree of materiality as relevant to the issue of intent, which is appropriate, particularly given that direct evidence of intent, such as an admission of deceptive purpose, is seldom available. *See Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366 (Fed.Cir.2007); *Ferring B.V. v. Barr Labs., Inc.*, 437 F.3d 1181, 1190–91 (Fed.Cir.2006); *GFI, Inc. v. Franklin Corp.*, 265 F.3d 1268, 1274 (Fed.Cir.2001); *Paragon Podiatry Lab., Inc. v. KLM Labs., Inc.*, 984 F.2d 1182, 1189 (Fed.Cir.1993); *Merck & Co. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1422 (Fed.Cir.1989).
- 2 Two decades before the *Keystone–Hazel–Precision* trilogy, the Supreme Court considered the effect of misstatements made during prosecution on the validity of a patent on a method for vulcanizing rubber. *Corona Cord Tire Co. v. Dovan Chem. Corp.*, 276 U.S. 358, 48 S.Ct. 380, 72 L.Ed. 610 (1928).
Before the Patent Office, the inventor attempted to swear behind a reference by submitting affidavits averring an earlier date of conception and reduction to practice for his invention. The inventor asserted that he had successfully used the claimed method "in the vulcanization of rubber goods," and one of his fellow chemists stated that the method had been used "in the actual vulcanization of rubber goods, such as hose, tires, belts, valves and other mechanical goods." *Id.* at 373, 48 S.Ct. 380. In fact, at the time referred to in the affidavits the inventor had used his method only on test slabs of rubber. The Court noted that whether the claimed method was used in the production of useful articles was not relevant to the asserted claims, and it therefore held that the false affidavit, while reckless, was not "the basis for" or "essentially material to" the issuance of the patent. The Court therefore declined to invalidate the asserted claims on that ground. *Id.* at 374, 48 S.Ct. 380.
Although the majority cites *Corona* as support for its narrow interpretation of the materiality requirement for inequitable conduct, *Corona* is of little relevance to that issue. *Corona* predates the creation of the inequitable conduct doctrine and has never been cited by the Supreme Court in any case addressing unclean hands or inequitable conduct. Apart from the fact that the decision addressed the issue of validity, rather than enforceability, the Court's decision was based on its conclusion that the affidavit in question was

not material because what mattered was that the method had been used to vulcanize rubber, not that it had been used to vulcanize rubber that was in turn used to make particular goods. Given that the nature of the rubber objects that the inventor vulcanized was not relevant to the issues before the Patent Office, it is not surprising that the Court found the error not to be material. In any event, the Court's choice of language—stating that the affidavits “were not the basis for [the issuance of the patent] or essentially material to its issue,” is not restricted to a “but for” test, but suggests a broader standard for materiality.

- 3 The PTO's Rule 56 deals with the “duty to disclose information material to patentability” and does not explicitly address affirmative false statements to the PTO made by parties prosecuting a patent application. In some instances, as in this case, a false or misleading affirmative statement also violates the disclosure requirement, because when a party makes a statement that is inconsistent with the party's own prior statement, the failure to disclose the prior statement constitutes a failure to disclose information that “refutes, or is inconsistent with, a position the applicant takes” in asserting patentability or opposing an argument of unpatentability relied on by the PTO. Rule 56(b)(2). An affirmative false statement that does not separately violate the disclosure rules may nonetheless be contrary to the broader “duty of candor and good faith” referred to in paragraph (a) of Rule 56, which is imposed on “each individual associated with the filing and prosecution of a patent application.” See *Nilssen v. Osram Sylvania, Inc.*, 504 F.3d 1223, 1231–32 (Fed.Cir.2007); *Dayco Prods.*, 329 F.3d at 1363–64.

The majority holds that the “but for” test does not apply to “affirmative acts of egregious misconduct.” It then adds that neither “nondisclosure of prior art references to the PTO nor failure to mention prior art references in an affidavit constitutes affirmative egregious misconduct” under any circumstances. As this case illustrates, it is often difficult to draw a line between nondisclosure and affirmative misrepresentation. For example, is a submission to the PTO that purports to describe the state of the prior art but knowingly omits the closest prior art an “affirmative act” of misconduct or merely a “non-disclosure of information”? Even the *Hazel-Atlas* case, which the majority describes as an example of egregious misconduct, could be regarded as an instance of nondisclosure, as the problem identified by the Supreme Court was the failure to disclose that the article in question was actually written by an attorney for the patentee. The distinction between “affirmative acts” and “nondisclosure” is thus apt to become fertile ground for litigation in the future, not to mention the distinction between “egregious” misconduct and misconduct that is assertedly less than “egregious.”

Contrary to the statement in Judge O'Malley's separate opinion, nothing in this opinion rejects the application of the doctrine of inequitable conduct (or “unclean hands”) as applied to other forms of misconduct, in litigation or otherwise. This case deals with the consequences of nondisclosure in violation of the duty of disclosure imposed by the PTO's Rule 56, and this opinion is directed solely to the role of the doctrine of inequitable conduct in that context.


- 4 The majority argues that the “but for” test is applied in both copyright and trademark law to claims of fraudulent registration. To the contrary, in the copyright context, courts have rejected the “but for” test in favor of a rule that a federal registration will be invalidated if the claimant willfully misstates or fails to state a fact that, if known, “might have occasioned a rejection of the application.” *Eckes v. Card Prices Update*, 736 F.2d 859, 861–62 (2d Cir.1984) (emphasis added); see generally 2 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 7.20 [B][1], at 7–212, 4(1) & n. 21 (rev. ed. 2010) (“If the claimant willfully misstates or fails to state a fact that, if known, might have caused the Copyright Office to reject the application, [it] may be ruled invalid.”) (citing numerous cases). In 2008, Congress adopted a “but for” test to govern the effect of errors on the right to bring a civil action and the right to heightened remedies, see 17 U.S.C. § 411 (Supp. III 2009), but that provision was not made applicable to the presumption of copyright validity set forth in 17 U.S.C. § 410(c), which remains subject to the pre-2008 standards. See 2 *Nimmer on Copyright* § 7.20[B][1], at 7–212.4(2) n. 25.2.

As for trademarks, it is true that in deciding whether fraud on the PTO will result in the cancellation of a mark on the federal register, courts apply a “but for” test of materiality. See, e.g., *Orient Express Trading Co. v. Federated Dep't Stores, Inc.*, 842 F.2d 650, 653 (2d Cir.1988) (defining material fact as “one that would have affected the PTO's action on the applications”); *Citibank, N.A. v. Citibanc Grp., Inc.*, 724 F.2d 1540, 1544 (11th Cir.1984) (requiring “false, material statement by the plaintiff of a fact that would have constituted grounds for denial of the registration had the truth been known.”). As the author of the leading treatise on trademark law has pointed out, however, cancellation of a mark from the federal register does not extinguish the trademark rights of the mark's owner or defeat the owner's right to sue infringers. 6 J. Thomas McCarthy, *McCarthy on Trademarks and Unfair Competition* § 31.60 (4th ed.2008).

Unlike the effect of a trademark registration, the issuance of a patent grants a right which, but for the examination and allowance at the PTO, would not exist. For those reasons, as McCarthy has explained, the “standard of disclosure and hence of ‘fraud’ in the procurement of federal trademark registrations should be, and is, quite different from that in patent procurement. The stringent standard[s] of disclosure applicable to patent applications are ... not appropriate to applications for trademark registration.” *Id.* at § 31.65 (internal quotation and citation omitted).

- 5 Understandably relying on this court's prior case law, the district court stated at one point that Mr. Pope “knew or should have known” that the withheld information would have been highly material to the examiner, and at another point the court referred to “balancing the levels of materiality and intent.” Although those remarks suggest a looser standard than that advocated here, they do not undermine the district court's ruling on inequitable conduct, because the district court elsewhere made findings that clearly satisfied the requirements of the more restrictive standard for inequitable conduct set forth above. In particular, the court found that Mr. Pope “acted with specific intent to deceive Examiner Shay and the PTO,” that Mr. Pope and Dr. Sanghera “made a conscious and deliberate decision to withhold disclosure to the PTO of these prior statements” to the EPO, and that both of them “knew that

the EPO materials made affirmative statements inconsistent with the declaration and the attorney remarks [to the PTO].” With respect to Dr. Sanghera, the court found that he “consciously made sworn statements to the [PTO] that were deliberately misleading.” With respect to the issue of “balancing,” moreover, the district judge did not find it necessary to balance intent against materiality, because he explicitly found that the evidence was strong as to both materiality and intent.

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [Milwaukee Electric Tool Corporation v. Snap-On Incorporated](#), E.D.Wis., December 29, 2017

632 F.3d 1292
United States Court of Appeals,
Federal Circuit.

UNILOC USA, INC. and Uniloc Singapore
Private Limited, Plaintiffs–Appellants,
v.
MICROSOFT CORPORATION,
Defendant–Cross Appellant.

Nos. 2010–1035, 2010–1055.

Jan. 4, 2011.

Rehearing Denied March 22, 2011.

Synopsis

Background: Patentee brought action for infringement of patent for a software registration system directed towards reducing the unauthorized use of software. The United States District Court for the District of Rhode Island, [William E. Smith, J.](#), [447 F.Supp.2d 177](#), granted summary judgment as to noninfringement. Patentee appealed. The Court of Appeals, [290 Fed.Appx. 337](#), reversed and remanded. Following jury trial on remand, jury returned verdict awarding patentee \$388,000,000 in damages. The District Court, [Smith, J.](#), [640 F.Supp.2d 150](#), granted alleged infringer judgment as matter of law (JMOL) in part, and granted new trial on infringement and willfulness. Patentee appealed.

Holdings: The Court of Appeals, [Linn](#), Circuit Judge, held that:

[1] whether additional structural components in message digest and secure hash algorithms contained in alleged infringer’s software products were “summation algorithms” as claimed in patent was fact issue for the jury;

[2] whether product activation system contained in alleged infringer’s software products used a “registration system” with a “mode switching means,” as claimed in patent was fact issue for jury;

[3] alleged infringer did not act despite an objectively high likelihood that its actions constituted infringement, as required to show willful infringement of patent;

[4] evidence relying on “25 percent rule of thumb,” which was tool used to approximate the reasonable royalty rate the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation, was inadmissible under *Daubert*; and

[5] District Court did not abuse its discretion in granting conditional new trial on damages.

Affirmed in part and reversed in part.

See also [447 F.Supp.2d 177](#).

West Headnotes (22)

[1] Patents Presumptions and Burden of Proof

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)3 Evidence
291k1812 Presumptions and Burden of Proof
291k1813 In general
(Formerly 291k312(1.1))

To prove infringement of patent, the plaintiff bears the burden of proof to show the presence of every element or its equivalent in the accused device.

[36 Cases that cite this headnote](#)

[2] Patents Infringement or noninfringement

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)7 Appellate Review
291k1965 Scope, Standard, and Extent of Review
291k1970 Particular Matters
291k1970(15) Infringement or noninfringement
(Formerly 291k324.55(5))

The underlying issue of infringement of a patent is a question of fact reviewed by the Court of Appeals for substantial evidence.

8 Cases that cite this headnote

[3] **Federal Courts** → Taking case or question from jury; judgment as a matter of law

170BFederal Courts
170BXVIICourts of Appeals
170BXVII(K)Scope and Extent of Review
170BXVII(K)2Standard of Review
170Bk3576Procedural Matters
170Bk3605Taking case or question from jury; judgment as a matter of law
(Formerly 170Bk776, 170Bk765)

Court of Appeals reviews a district court's denial of judgment as a matter of law (JMOL) after a jury verdict de novo, asking whether the evidence points so strongly and overwhelmingly in favor of the moving party that no reasonable jury could have returned a verdict adverse to that party.

4 Cases that cite this headnote

[4] **Patents** → Questions of law or fact

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)4Trial, Hearing, and Determination
291k1848Questions of law or fact
(Formerly 291k314(5))

Whether additional structural components in message digest and secure hash algorithms contained in alleged infringer's software products were "summation algorithms," as claimed in patent for a software registration system, was a fact issue for the jury in patent infringement action. 35 U.S.C.A. § 271(a).

11 Cases that cite this headnote

[5] **Evidence** → Matters involving scientific or other special knowledge in general
Evidence → Necessity and sufficiency

157Evidence
157XIIOpinion Evidence
157XII(B)Subjects of Expert Testimony
157k508Matters involving scientific or other special knowledge in general
157Evidence
157XIIOpinion Evidence
157XII(D)Examination of Experts
157k555Basis of Opinion
157k555.2Necessity and sufficiency

Under *Daubert*, the district court must exercise its "gatekeeper" function in ensuring that scientific testimony is relevant, reliable and admissible. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

7 Cases that cite this headnote

[6] **Evidence** → Conflict with other evidence

157Evidence
157XIIOpinion Evidence
157XII(F)Effect of Opinion Evidence
157k574Conflict with other evidence

It is decidedly the jury's role to evaluate the weight to be given to the testimony of dueling qualified experts.

11 Cases that cite this headnote

[7] **Patents** → Questions of law or fact

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)4Trial, Hearing, and Determination
291k1848Questions of law or fact
(Formerly 291k314(5))

Whether product activation system contained in

alleged infringer’s software products used a “registration system” with a “mode switching means,” as claimed in patent for a software registration system, was fact issue for jury in infringement action; use of product during “grace period” after agreement to end user license agreement (EULA) and before product activation in accused products did not constitute full use in accordance with EULA, and patent was not limited to situation where activation and licensing were concurrent. 35 U.S.C.A. § 112.

13 Cases that cite this headnote

[8] Federal Civil Procedure → Weight of evidence

- 170AFederal Civil Procedure
- 170AXVINew Trial
- 170AXVI(B)Grounds
- 170Ak2338Verdict or Findings Contrary to Law or Evidence
- 170Ak2339Weight of evidence

A new trial is only appropriate when the outcome is against the clear weight of the evidence such that upholding the verdict will result in a miscarriage of justice.

[9] Federal Civil Procedure → Presumptions; construction of evidence

- 170AFederal Civil Procedure
- 170AXVINew Trial
- 170AXVI(C)Proceedings
- 170Ak2372Hearing and Determination
- 170Ak2373Presumptions; construction of evidence

In contrast to ruling on a motion for judgment as a matter of law (JMOL), in considering a motion for a new trial, the district court may independently weigh the evidence.

7 Cases that cite this headnote

[10] Federal Courts → New Trial, Rehearing, or Reconsideration

- 170BFederal Courts
- 170BXVIICourts of Appeals
- 170BXVII(K)Scope and Extent of Review
- 170BXVII(K)2Standard of Review
- 170Bk3576Procedural Matters
- 170Bk3606New Trial, Rehearing, or Reconsideration
- 170Bk3606(1)In general (Formerly 170Bk825.1)

District court is entitled to deference in granting a new trial motion, and the Court of Appeals only overturns grant of new trial if district court has abused its discretion.

9 Cases that cite this headnote

[11] Patents → Degree of proof
Patents → Participation, intent, and contributory infringement

- 291Patents
- 291VIIPatent Infringement
- 291VII(C)Actions
- 291VII(C)3Evidence
- 291k1824Degree of proof (Formerly 291k312(4))
- 291Patents
- 291VIIPatent Infringement
- 291VII(C)Actions
- 291VII(C)3Evidence
- 291k1825Weight and Sufficiency
- 291k1832Participation, intent, and contributory infringement (Formerly 291k312(8))

To establish willful infringement of a patent, a patentee must show by clear and convincing evidence that infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent; in addition, a patentee must show the risk was either known or so obvious that it should have been known to the accused infringer.

24 Cases that cite this headnote

[12] Patents → Computers and Software

291 Patents
291 VII Patent Infringement
291 VII(B) Particular Fields of Invention
291k1651 Computers and Software
291k1652 In general
(Formerly 291k227)

Alleged infringer did not act despite an objectively high likelihood that its actions constituted infringement, as required to show willful infringement of patent for a software registration system, absent any evidence at trial or on appeal from patent holder showing why alleged infringer, at time it began infringement, could not have reasonably determined that product's algorithms did not meet patent's limitations.

[26 Cases that cite this headnote](#)

[13] Patents → Reasonable royalty; hypothetical negotiation

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)5 Relief
291k1910 Damages
291k1914 Reasonable royalty; hypothetical negotiation
(Formerly 291k319(1))

A reasonable royalty, as part of an award of damages upon finding infringement of valid patent, is often determined on the basis of a hypothetical negotiation, occurring between the parties at the time that infringement began. 35 U.S.C.A. § 284.

[82 Cases that cite this headnote](#)

[14] Evidence → Damages

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.9 Damages

Evidence relying on “25 percent rule of thumb,” which was tool used to approximate the reasonable royalty rate the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation, was inadmissible under *Daubert*, since it failed to tie a reasonable royalty base to facts of case at issue. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[140 Cases that cite this headnote](#)

[15] Patents → Profits and damages

291 Patents
291 VII Patent Infringement
291 VII(C) Actions
291 VII(C)3 Evidence
291k1812 Presumptions and Burden of Proof
291k1820 Profits and damages
(Formerly 291k312(1.7))

The patentee bears the burden of proving damages in infringement action. 35 U.S.C.A. § 284.

[46 Cases that cite this headnote](#)

[16] Evidence → Damages

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.9 Damages

To be admissible under *Daubert*, expert testimony opining on a reasonable royalty rate in patent infringement case must carefully tie proof of damages to the claimed invention's footprint in the market place. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[101 Cases that cite this headnote](#)

[17] **Patents** → Entire market value

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)5Relief
291k1900Profits
291k1905Entire market value
(Formerly 291k318(4.1))

In patent infringement action, the “entire market value rule” allows a patentee to assess damages based on the entire market value of the accused product only where the patented feature creates the basis for customer demand or substantially creates the value of the component parts. 35 U.S.C.A. § 284.

140 Cases that cite this headnote

[18] **Patents** → New trial; amendment

291Patents
291VIIPatent Infringement
291VII(C)Actions
291VII(C)6Judgment
291k1939Relief from Judgment
291k1942New trial; amendment
(Formerly 291k323.3)

District Court did not abuse its discretion in granting conditional new trial on damages in action for infringement of a patent for a software registration system, where patentee’s references to total dollar volume of sales of accused products to show that its claimed royalties were reasonable violated the “entire market value rule.” Fed.Rules Civ.Proc.Rule 59, 28 U.S.C.A.

46 Cases that cite this headnote

[19] **Patents** → Questions of law or fact

291Patents
291IIIPatentability and Validity
291II(E)Obviousness; Lack of Invention
291II(E)4Evidence and Determination
291k800Questions of law or fact

(Formerly 291k314(5))

Issue of whether patent for a software registration system was invalid due to obviousness in light of prior art, even if summation algorithm as used in patent would have been an obvious or inferior substitute for the algorithms used in prior art patents, was fact issue for jury in patent infringement action.

6 Cases that cite this headnote

[20] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 4,658,093. Cited as Prior Art.

12 Cases that cite this headnote

[21] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 5,474,555, US Patent 6,263,432. Cited.

[22] **Patents** → In general; utility

291Patents
291XPatents Enumerated
291k2091In general; utility
(Formerly 291k328(2))

US Patent 5,490,216. Infringed.

Attorneys and Law Firms

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Before RADER, Chief Judge, LINN and MOORE, Circuit Judges.

Opinion

LINN, Circuit Judge.

Uniloc USA, Inc. and Uniloc Singapore Private Limited (collectively, “Uniloc”) appeal from the decision of the United States District Court for the District of Rhode Island granting Microsoft Corporation’s (“Microsoft”) motion for judgment as a matter of law (“JMOL”) of non-infringement and no willful infringement of asserted claims of Uniloc’s U.S. Patent No. 5,490,216 (“’216 patent”), and, in the alternative, granting a new trial on infringement and willfulness. *Uniloc USA, Inc. v. Microsoft Corp.*, 640 F.Supp.2d 150 (D.R.I. Sept.29, 2009) (“*Uniloc II*”). Uniloc also appeals the district court’s alternative grant of a new trial on damages. Microsoft cross-appeals the district court’s denial of its motion for JMOL of invalidity of the ’216 patent. *Id.* at 179–83.

Because the jury’s verdict on infringement was supported by substantial evidence, this court reverses the district court’s grant of JMOL of non-infringement; this court also reverses the district court’s alternative grant of a new trial on infringement as an abuse of discretion. Because the jury’s verdict on willfulness was not supported by substantial evidence, this court affirms the district court’s grant of JMOL of no willfulness; the district court’s alternative grant of a new trial for willfulness is thus rendered moot. Because the jury’s damages award was

fundamentally tainted by the use of a legally inadequate methodology, this court affirms the grant of a new trial on damages. Finally, because the district court did not abuse its discretion in determining that the jury verdict of no invalidity of the ’ *1296 216 patent was supported by substantial evidence, we affirm the district court’s denial of Microsoft’s motion for JMOL of invalidity.

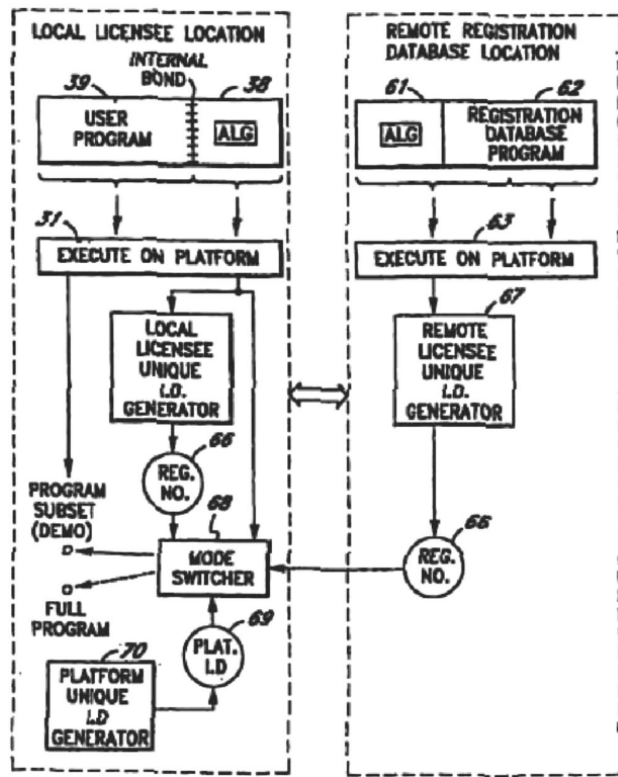
I. Background

Commercial software manufacturers like Microsoft lose significant sales as a result of the “casual copying” of software, where users install copies of a software program on multiple computers in violation of applicable software license conditions. Uniloc’s ’216 patent was an early attempt to combat such software piracy. There is no dispute as to the actual functioning of Uniloc’s patented invention and Microsoft’s accused products. The following background information is taken from the district court’s opinion. *Uniloc II*, 640 F.Supp.2d 150.

A. The ’216 Patent

Uniloc’s ’216 patent is directed to a software registration system to deter copying of software. The system allows the software to run without restrictions (in “use mode”) only if the system determines that the software installation is legitimate. A representative embodiment functions as follows. First, a user intending to use the software in “use mode” enters certain user information when prompted, which may include a software serial number and/or name and address information. An algorithm on the user’s computer (a “local licensee unique ID generating means”) combines the inputted information into “a registration number unique to an intending licensee” (a “local licensee unique ID”). ’216 patent, Abstract. The user information is also sent to the vendor’s system, which performs the identical algorithm (a “remote licensee unique ID generating means”) to create a “remote licensee unique ID” for the user. When the application boots again, a “mode switching means” compares the local and remote licensee unique IDs. If they match, the program enters into “use mode.” If they do not match, the program enters into “demo mode,” wherein certain features are disabled. Figure 8 from the ’216 patent shows the fifth preferred embodiment:

*1297



216 patent, Fig. 8.

Uniloc asserts only independent claim 19:

19. A remote registration station incorporating *remote licensee unique ID generating means*, said station forming part of a *registration system* for licensing execution of digital data in a *use mode*, said digital data executable on a platform, said system including *local licensee unique ID generating means*, said system further including *mode switching means* operable on said platform which permits use of said digital data in said use mode on said platform only if a licensee unique ID generated by said local licensee unique ID generating means has matched a licensee unique ID generated by said remote licensee unique ID generating means; and wherein said remote licensee unique ID generating means comprises software executed on a platform which includes the algorithm utilized by said local licensee unique ID generating means to produce said licensee unique ID.

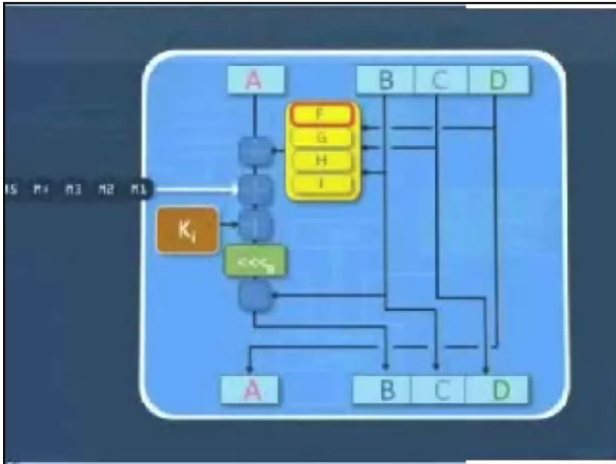
216 patent, col. 15 l.21—col. 16 l.9 (emphasis added).

The accused product is Microsoft’s Product Activation feature that acts as a gatekeeper to Microsoft’s Word XP, Word 2003, and Windows XP software programs. Upon receipt of Microsoft’s retail software program, the user must enter a 25-character alphanumeric product key contained within the packaging of Microsoft’s retail products. If the Key is valid, the user is asked to agree to the End User License Agreement (“EULA”), by which the licensor-licensee relationship is initiated.

*1298 At about this time, the software creates a Product ID (“PID”) and a Hardware ID (“HWID”) on the user’s computer. The PID is formed from the combination of the Product Key, information from the software CD, and a random number from the user’s computer. The HWID is generated from information about the user’s computer. The user may use the software without initiating Product Activation, but such use is temporally limited (50 start-ups of Office and 30 days use of Windows until basic functions like saving and printing are deactivated) and functionally limited (no updates can be downloaded and installed). If the user elects to initiate Product Activation, the software sends a digital license request to Microsoft over the internet, which includes: the PID, the HWID, and additional activation information. At Microsoft’s remote location, this information is entered into one of two software algorithms: the MD5 message digest algorithm (“MD5”) for Office products and the SHA-1 secure hash algorithm (“SHA-1”) for Windows products.¹

The functionality of the MD5 and SHA-1 algorithms is at the heart of this case. As the district court noted, Microsoft’s expert, Dr. Wallach, provided a demonstrative animation, which gives a clear, detailed, and uncontested explanation of the functionality of these algorithms. The animation and the explanation of it given by Dr. Wallach at the trial (Trial Tr. 157:21–166:3, Mar. 31, 2009) may be downloaded at <http://oralarguments.cafc.uscourts.gov/animation/Uniloc.2010-1035.Animation.pdf>. The first frame is explained below.

B. The Accused Product



First, A, B, C, and D are 32-bit numbers and F, G, H, and I are logical operations *1299 into which the numbers B, C, and D are entered. For example, $F(x, y, z) = (x \text{ AND } y) \text{ OR } ((\text{NOT } x) \text{ AND } z)$. Thus, if B, C, and D are 0, 1, 1, respectively, $F(0, 1, 1) = 1$. The result is that three 32-bit numbers are compressed into a single 32-bit number.

Second, the resulting number is added to A using modular addition. Modular addition is a way of adding that resets the count of a sum after a certain threshold number is reached. The most familiar example is the American A.M./ P.M. clock system. If a three hour movie begins at 11:00 A.M., it will end at 2:00 P.M. This is an example of mod12 addition: one first adds $11+3=14$ then subtracts 12 to get 2. Modular addition, or modulo-addition, is used throughout the MD5 algorithm.

Third, M1, the first component of the source message being hashed, is modulo-added to the result from step 2.

Fourth, additive constant K_1 is modulo-added to the result from step 3.

Fifth, the resulting number is “circular shifted” (according to Microsoft) or “left shifted” (according to Uniloc); the shift is depicted by the green box with the three arrows in the diagram. Because the actual functionality is not disputed, we will refer to it as “circular shifting” for the purposes of this opinion. Inserting into the shifter the binary number 0100 1011² (which is the binary equivalent of 75), and shifting it by 1 place would yield 1001 0110 (which is the binary equivalent of 150). The result of this operation is a multiplication by two for each single unit

shift. If the number is again shifted (or if the original shift was by 2 places), the output becomes 0010 1101 (which is the binary equivalent of 45). Because a single 8-bit string cannot represent numbers larger than 255 (1111 1111), such numbers are represented in mod255; thus the 300 expected from multiplying 150 by 2, becomes 45 in mod255 (300–255).

Sixth, the resulting number is then modulo-added to initial value B, which final number becomes the new value B’. Initial value C becomes new value D’, D becomes A’, and A becomes B’. The hashing algorithm is then run again using these new values (A’, B’, C’, D’) in place of the old (A, B, C, D) and the second component of the message (M2) in place of the first (M1). After sixteen rounds of this, a different logical function, $G(x, y, z)$ is used, and the same message string is input in a different order. The function G is used for sixteen rounds, followed by sixteen rounds of function H and sixteen rounds of function I. The end result is a “license digest,” i.e. “a shortened fixed-bit output,” *Uniloc II*, 640 F.Supp.2d at 157, derived from the original message.

Microsoft encrypts this digest, and sends it along with the original data back to the user’s computer. The software on the user’s computer decrypts the message and recovers the “license digest.” It then inputs the original data (i.e. the PID, HWID, and additional activation information) and enters it into the same MD5 or SHA–1 algorithm used by Microsoft’s computers, resulting in a local “license digest.” Microsoft’s Product Activation software compares the local license digest and the remote license digest; if they match, the software product is activated. If they do not, the software returns to pre-Product Activation mode.

C. Procedural History

In the first iteration of this case, the district court issued a claim construction *1300 ruling, construing several terms that are relevant to the instant appeal. *Uniloc USA, Inc. v. Microsoft Corp.*, 447 F.Supp.2d 177 (D.R.I.2006) (“*Uniloc I Claim Construction*”). These appear below.

“Licensee unique ID”

“A unique identifier associated with a licensee.” *Id.* at 183.

“Local licensee unique ID generating means” and “Remote licensee unique ID generating means”

Means plus function. “Function: to generate a local or remote licensee unique ID” and “Structure: a summation algorithm or a summer and equivalents thereof.” *Id.* at 190.

“Use mode”

“A mode that allows full use of the digital data or software in accordance with the license.” *Id.* at 196.

“Mode switching means”

Means plus function. “Function: to permit the digital data or software to run in a use mode if the locally generated licensee unique ID matches with the remotely generated licensee unique ID.” and “Structure: program code which performs a comparison of two numbers or a comparator and equivalents thereof.” *Id.* at 198 (synonyms in the claim construction not relevant to the claim at issue are removed for simplicity).

“Registration system”

“A system that allows digital data or software to run in a use mode on a platform if and only if an appropriate licensing procedure has been followed.” *Id.* at 202.

The district court granted summary judgment of non-infringement, *Uniloc USA, Inc. v. Microsoft Corp.*, No. 03–440 (D.R.I. Oct. 19, 2007), concluding that the algorithm used at Microsoft’s remote station to generate a licensee unique ID was not identical to the algorithm used on the user’s local station as required by the last limitation in the claim. *Id.* at 24.

On appeal, this court reversed and remanded the finding of non-infringement, holding that Uniloc had put forth “extensive and by no means conclusory” evidence that Microsoft’s Product Activation used the same algorithm at the local and remote sites (respectively, the “local licensee unique ID generating means” and “remote licensee unique ID generating means”), and that the issue of whether the accused products met this limitation should have gone to the jury. *Uniloc USA, Inc. v. Microsoft Corp.*, 290 Fed.Appx. 337, 343 (Fed.Cir.2008) (non-precedential) (“*Uniloc I*”). In that appeal, Microsoft presented several alternative grounds for affirmance,

including several arguments centered around the lack of any information in that is “uniquely associated with the person” that results in a “licensee unique ID.” Br. of Microsoft Corp. at 37–53, *Uniloc I* (Mar. 19, 2008). This court held that “the licensee unique ID does not require personal information about the user,” so long as it is “unique,” and not “based solely on platform-related user information.” *Uniloc I*, 290 Fed.Appx. at 342–43. We explicitly noted that the specification of the ‘216 patent “leave[s] open the possibility that vendor-provided information, like Microsoft’s Product Key, could be the basis for a ‘licensee unique ID.’ ” *Id.* at 344. Microsoft also argued that Product Activation lacked a “licensee unique ID generating means.” This court summarily rejected that argument, noting that “[w]e have considered these arguments [for affirmance on alternative grounds] and conclude they are without merit.” *Id.* at 342.

On remand, the district court first rejected several *in limine* motions, including a motion by Microsoft to exclude any testimony by Uniloc’s damages expert, Dr.

Gemini, under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993) and Federal Rule of Evidence 702, for his use of an allegedly arbitrary baseline rate of \$10-per-activation, and the use of a 25 percent rule of thumb. *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.Supp.2d 147, 150–51 (D.R.I. 2009) (“*In Limine*”). After a full trial, the jury returned a verdict of infringement and no invalidity of claim *1301 19 of the ‘216 patent, and found Microsoft’s infringement to be willful. The jury awarded Uniloc \$388 million in damages. In post trial motions, Microsoft asked for: (1) JMOL of invalidity due to anticipation and obviousness; (2) JMOL of non-infringement of the “licensee unique ID generating means” and “registration system”/“mode switching means” limitations; (3) JMOL of non-infringement because Microsoft could not have directly infringed the system because claim 19 requires acts to be taken on the user’s local computer over which Microsoft has no control; (4) JMOL of no willfulness; (5) a new trial on damages for the improper use of the 25% rule of thumb and the entire market value rule; and (6) in the alternative, a new trial on infringement and willfulness.

The district court, in a comprehensive and well-reasoned opinion, denied JMOL of invalidity, granted JMOL of non-infringement on the basis of both contested claim limitations, granted JMOL of no willfulness, granted a new trial on damages on the improper use of the entire market value rule, rejected Microsoft’s arguments regarding the 25 percent rule of thumb as having been previously decided, *Uniloc II*, 640 F.Supp.2d at 184 and n. 42, and granted in the alternative a new trial on infringement and willfulness. The district court also considered and rejected Microsoft’s contentions that it could not directly infringe the asserted claims. The details of the district court’s opinion are discussed more fully below.

Uniloc appeals all but the denial of JMOL of invalidity, which Microsoft cross-appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

II. Discussion

A. Infringement

[1] [2] To prove infringement, the plaintiff bears the burden of proof to show the presence of every element or its equivalent in the accused device. *Lemelson v. United*

States, 752 F.2d 1538, 1551 (Fed.Cir.1985). The underlying infringement issue is a question of fact reviewed for substantial evidence. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1332 (Fed.Cir.2008).

[3] This court’s review of a district court’s grant of JMOL is governed by regional circuit law. *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.*, 425 F.3d 1366, 1372 (Fed.Cir.2005). The First Circuit reviews a district court’s denial of JMOL after a jury verdict de novo, asking whether “the evidence points so strongly and overwhelmingly in favor of the moving party that no reasonable jury could have returned a verdict adverse to that party.” *Keisling v. SER–Jobs for Progress, Inc.*, 19 F.3d 755, 759–60 (1st Cir.1994). This court may not evaluate “the credibility of witnesses, resolve conflicts in testimony, or evaluate the weight of the evidence,” but must view the evidence in the light most favorable to Uniloc. *Gibson v. City of Cranston*, 37 F.3d 731, 735 (1st Cir.1994).

Microsoft argues that because there is no dispute about how the accused products work, infringement should be reviewed de novo. Br. of Microsoft Corp. at 18, 22–23 (citing *Athletic Alts., Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed.Cir.1996) (“Where, as here, the parties do not dispute any relevant facts regarding the accused product but disagree over which of two possible meanings of Claim 1 is the proper one, the question of literal infringement collapses to one of claim construction, and should thus be reviewed de novo.”) and *General Mills, Inc. v. Hunt–Wesson, Inc.*, 103 F.3d 978, 983 (Fed.Cir.1997) (similar)). It is well-settled that infringement is a factual issue, reviewed for substantial evidence. E.g. *1302 *Finjan, Inc. v. Secure Computing, Corp.*, 626 F.3d 1197 (Fed.Cir.2010); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1546 (Fed.Cir.1983). The cases cited by Microsoft involve a procedural posture not present in this case. As this court noted in *International Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1374 (Fed.Cir.2004), the infringement issue in *General Mills* collapsed into claim construction because “the parties agreed with each other and the district court about how each of two competing claim constructions would apply to the undisputed structure of the accused invention.” In other words, the parties conceded that under one claim construction there was infringement and under the other there was none, and were arguing only over which claim construction was appropriate. The infringement issue in *Athletic Alternatives* also came to this court with the same posture. See 73 F.3d at 1581 (“We conclude that Claim 1 of the ‘097 patent includes the limitation that the splay-creating string end offset distance take on at least

three values, *i.e.*, a minimum, a maximum, and at least one intermediate value. We thus affirm the district court's conclusion that Claim 1 does not literally read on the Vortex racket."). As discussed below, this case presents the opposite procedural posture; the claim construction itself is not contested, but the application of that claim construction to the accused device is. Thus, this court applies the traditional rule for review of jury verdicts of factual issues discussed above.

This case presents three primary infringement issues: 1) whether the accused products contain "licensee unique ID generating means"; 2) whether the accused products contain a "registration system" with a "mode switching means" that precludes full use of the software unless the outputs of the local and remote algorithms match; and 3) whether Microsoft can be liable for direct infringement when it has no control over the user's computer.

1. "Licensee Unique ID Generating Means"

The '216 patent specification describes the licensee unique ID generating means as an algorithm that functions by "combin[ing] by addition the serial number 50 with the software product name 64 and customer information 65 and previous user identification 22 to provide registration number 66." *Id.* col. 11 ll.53–56. The district court's construction of "licensee unique ID generating means" is undisputed on appeal: it is a means plus function claim, with the function being "to generate a local or remote licensee unique ID" and the structure being "a summation algorithm or a summer and equivalents thereof." *Uniloc I Claim Construction*, 447 F.Supp.2d at 190.

The district court determined that no reasonable jury could find that the accused products were summation algorithms, and granted JMOL of non-infringement. The district court gave seven reasons for its decision: (1) the "circular shifting and mixing functions fundamentally create a more secure result compared to an algorithm based in summation as the specification discloses," *Uniloc II*, 640 F.Supp.2d at 170; (2) summation is reversible and MD5 is irreversible and much more complicated, *id.* (citing *Business Objects, S.A. v. Microstrategy, Inc.*, 393 F.3d 1366, 1370 (Fed.Cir.2005)); (3) "MD5 achieves its function in a way an algorithm based in summation could not," *id.*; (4) the '216 patent contained only a narrow structural disclosure that is not entitled to a broad scope, *id.* at 171; (5) the documentary evidence presented by Uniloc did not show what "the complex hashes in *this case* actually do, and whether that

is equivalent to the 'by addition' structure Uniloc disclosed," *id.* at 172; (6) Uniloc did not put forth expert opinion interpreting the documents, except for Klausner's presentation of "factual information *1303 under the guise of opinion," *id.* at 172 and n. 25 (citing *Centricut, LLC v. Esab Grp., Inc.*, 390 F.3d 1361, 1369–70 (Fed.Cir.2004), but noting that case is "not a perfect fit"); and (7) "[t]he jury 'lacked a grasp of the issues before it,'" *id.* at 173 (citing *Tex. Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1570 (Fed.Cir.1996)) because it "ignored Dr. Wallach's admittedly complex explanation and embraced Mr. Klausner's" "incomplete, oversimplified and frankly inappropriate explanation," *id.* at 170 n. 21.

Uniloc argues that a reasonable jury could have concluded that MD5 and SHA1 were summation algorithms within the meaning of the '216 patent, and that the district court erred in granting JMOL of non-infringement. The jury heard two sets of evidence in favor of Uniloc's contention that MD5 and SHA1 were summation algorithms. First, Dr. Klausner, Uniloc's expert, testified that MD5 makes a digest of the message it receives

by doing addition and multiplication in a series of rounds over and over again. It takes a piece of the input, adds and shifts it, takes another piece of the input, adds and shifts it. It does a number of other operations, what are called logical operations in mathematics. But the essence is it eventually adds each of the results of these piece-wise operations into a bucket or a hash, and that hash becomes the output of the algorithm.

He also testified that MD5 uses "two primary kinds of operations to do its work. One is addition, summing; and the other is what we call left shifting ... [which is] actually nothing more than multiplication ... [which] is nothing more than addition done over and over again." Klausner then identified the source code that was the basis of his understanding that MD5 performed addition, noting that "I'm not saying that that's all that MD5 does, but that's a significant portion of the MD5 algorithm." Second, the jury saw documentary evidence identifying MD5 as, or equating it to, a summation algorithm. For example, in Microsoft's Windows Protocols Master Glossary, one entry reads "**checksum**: A value that is the summation of a byte stream. By comparing the checksums computed from a data item at two different times, one can quickly assess whether the data items are identical." That same document equates "hashes" and "checksums," and notes that "[w]ell-known hash algorithms for computer hashes include MD4, MD5, and SHA1." Other Microsoft documents also refer to the outcome of the MD5 algorithm as a "checksum." See Kenneth Pfeil, *Data Security and Data Availability in the Administrative*

Authority, Microsoft TechNet, available at <http://technet.microsoft.com/en-us/library/cc 722918.aspx> (“*Hashing*. Hashing is also referred to as MD5 checksum.”). See also *Windows Driver Kit: Network Devices and Protocols: NDIS_TASK_IPSEC*, MSDN, updated document available at <http://msdn.microsoft.com/en-us/library/ff 558990.aspx> (“**MD5** Set by a miniport driver to indicate that its NIC can use the keyed MD5 algorithm for computing and/or validating a cryptographic checksum for an AH payload and/or ESP payload.”). In addition, Uniloc relied on **U.S. Patent No. 6,263,432** (“**432 patent**”), which, in describing the procedure for generating a secure e-ticket, includes the following step:

In this example, each of the four fields in the ‘eticket’ framework **302** and user extension **304** include data represented by the number ‘1’ in step S1. The message Digest/Hash is represented by a summation (Σ) algorithm (equated to, or exemplary of, the MD5 protocol or other hashing algorithm). Hence, to calculate the Message Digest/Hash, a summation ***1304** algorithm is implemented using all eight fields of data in step 2.

432 patent col. 9 ll.50–57.

Uniloc also argues that the district court improperly narrowed the claim construction on JMOL from “summation algorithm” to a “simple combination of inputs by addition,” *Uniloc*, 640 F.Supp.2d at 170, which was improper under *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1320 (Fed.Cir.2003).

Microsoft counters with three arguments. First, Uniloc’s interpretation of “summation algorithm” would be so broad as to cover any algorithm with a plus sign, and would be akin to adopting the rejected claim construction of licensee unique ID generating means as simply “an algorithm.” Microsoft argues that such a broad reading is inconsistent with the patent, which disclosed only the specific structure where “the algorithm, in this embodiment, combines by addition,” **216 patent**, col. 11 ll.53–56. Second, Microsoft notes that its expert, Dr. Wallach, established that the algorithms as a whole are not “summation algorithm[s]” because neither circular shifting nor the logical operations of MD5 and SHA1 are addition-based, and that his testimony was un rebutted, because the district court prevented Uniloc’s expert, Dr. Klausner, from opining that MD5 and SHA1 were summation algorithms within the scope of claim 19 of the **216 patent**. Finally, Microsoft contrasts the purpose of MD5 and SHA1—to irreversibly scramble the data so that the inputs cannot be derived—with the purpose of the summation algorithms in the **216 patent**, to put data together by addition.

¹⁴¹ As this court held in *Uniloc I*, 290 Fed.Appx. at 342, there was substantial evidence for a jury to conclude that the output of the MD5 and SHA1 algorithms was a licensee unique ID. Thus, both MD5 and the summation algorithm in the **216 patent** perform the same function of generating a licensee unique ID. It is also undisputed that MD5 and SHA1 use some addition to perform this function. *Uniloc II*, 640 F.Supp.2d at 168. Thus, the issue is whether the additional structural components of MD5 and SHA1 preclude a reasonable jury from finding that they are “summation algorithm[s].” This court agrees with Uniloc that they do not.

First, the breadth of claim 19 is not as narrow as Microsoft argues and the district court concluded. “The literal scope of a properly construed means-plus-function limitation does not extend to all means for performing a certain function. Rather, the scope of such claim language is sharply limited to the structure disclosed in the specification and its equivalents.” *J & M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1367 (Fed.Cir.2001). Nevertheless, in determining equivalence under § 112 ¶ 6, “the range of permissible equivalents depends upon the extent and nature of the invention.” *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1436 (Fed.Cir.2000) (citing *Tex. Instruments, Inc. v. ITC*, 805 F.2d 1558, 1563 (Fed.Cir.1986)). “More particularly, when in a claimed ‘means’ limitation the disclosed physical structure is of little or no importance to the claimed invention, there may be a broader range of equivalent structures than if the physical characteristics of the structure are critical in performing the claimed function in the context of the claimed invention.” *Id.* The structural disclosure in the **216 patent** is not limited to simple addition in the colloquial sense of adding numbers together and nothing more. In the sixth embodiment, from which the summation structure was derived, the algorithm “combines by addition the serial number **50** with the software product name **64** and customer information **65** and previous user identification **22** to provide registration number.” **216 patent** col.11 ll.54–57. This “combination by addition” ***1305** necessarily incorporates an initial step of converting the information into a common format to be added, which requires more than simple addition. Moreover, there is no indication that the summation structure was critical to the **216 patent**’s licensee unique ID generating means algorithm’s function of generating a licensee unique ID. In fact, the **216 patent** repeatedly refers to the licensee unique ID generating means by the generic phrase, “an algorithm,” e.g. **216 patent** col.2 ll.65–66, and makes clear that the importance of the algorithm is only that it be “adapted to generate a registration number which is unique to an intending

licensee.” *Id.* col.2 ll.66–67. It may well be that the structural disclosure of the licensee unique ID generating means limitation is minimal because of the relative unimportance of the particular structure of that element. This does not, as Microsoft argues, result in pure functional claiming, nor expand the claim construction to Uniloc’s proposed and rejected one of “an algorithm.” Declining to limit the construction to simple addition does not also extend the claims to any algorithm that includes a plus sign; the construction retains its explicit limitation that the algorithm used be fairly capable of categorization as “a summation algorithm.”

Second, a jury could reasonably determine that MD5 and SHA1 were not as radically different from the summation algorithm disclosed in the '216 as Microsoft and the district court determined them to be. Klausner testified that the “essence” of MD5 is that it “adds each of the results of [the logical operations and shifts] into a bucket or hash,” and that addition is one of the “two primary kinds of operations [that MD5 performs],” and the second is left shifting, which he equated to multiplication, which he testified “is nothing more than addition done over and over again.” To be sure, Microsoft’s Dr. Wallach disagreed with Klausner’s testimony, choosing to focus on the logical functions, which he called the “heart and soul that makes MD5 what it is,” and the circular shifter, both of which he opined were not “summation.” However, Microsoft has not explained why all the steps of an algorithm must be summation steps in order for the algorithm to qualify as a summation algorithm. The jury could reasonably have believed that MD5 is a summation algorithm. As this court noted in *IMS Tech.*, “though two structures arguably would not be considered equivalent structures in other contexts, e.g., if performing functions other than the claimed function,” they may nevertheless be equivalent under § 112 ¶ 6 when performing the same function. 206 F.3d at 1436. Here, the claimed function is the generation of a licensee unique ID, *see infra* section I.C., and if as Klausner testified, MD5 uses addition to perform this function, the enhanced functionality of MD5 in making the output more secure should not prevent it from being considered an equivalent structure. Microsoft’s argument that because MD5 is irreversible it cannot be a summation algorithm—such that even if “you know the output of the algorithm, it is impossible even to guess any one input that would create the output,” Br. of Microsoft at 21—is likewise unconvincing, because the same is true of the most basic simple addition algorithm (e.g., it is impossible to identify the two numbers whose sum is 23).

¹⁵¹ ¹⁶¹ Third, the district court improperly rejected Klausner’s testimony as “incomplete, oversimplified and

frankly inappropriate,” justifying its rejection by Klausner’s failure to discuss hashing, summation, or left-shifting in his expert report, and his analogizing of an MD5 digest to a Reader’s Digest book. *Uniloc II*, 640 F.Supp.2d at 170 n. 21. In common with the other circuits, First Circuit law does not allow the district court in a jury trial to *1306 evaluate “the credibility of witnesses, resolve conflicts in testimony, or evaluate the weight of the evidence.” *Gibson*, 37 F.3d at 735. Under *Daubert*, the district court must exercise its “gatekeeper” function in ensuring that scientific testimony is relevant and reliable. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 137, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999) (discussing *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993)). Here, the district court explicitly noted that Klausner was “qualified.” *Uniloc II*, 640 F.Supp.2d at 172 n. 25. It is decidedly the jury’s role to evaluate the weight to be given to the testimony of dueling qualified experts. *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 856 (Fed.Cir.2010), *cert. granted*, 562 U.S. —, 131 S.Ct. 647, 178 L.Ed.2d 476 (2010) (“[I]t is not the district court’s role under *Daubert* to evaluate the correctness of facts underlying an expert’s testimony.”). The district court’s criticism of Klausner’s use of the analogy of a digest to a “reader’s digest” is also improper, because Microsoft did not object at trial and has used the same analogy in describing the output of SHA1 as a “hash digest, where *digest* indicates a shortened size, similar to *Reader’s Digest* condensed books.”

Klausner’s testimony was certainly a simplification of the functioning of MD5, but neither the district court nor Microsoft demonstrate why it was “oversimplified,” *Uniloc II*, 640 F.Supp.2d at 171 n. 21, or even why it was inaccurate. Klausner recognized that summation was not all that MD5 did, but opined that it was “a significant portion of the MD5 algorithm.”

Finally, Microsoft’s attacks on the documentary evidence presented by Uniloc are unwarranted. In particular, the contemporaneous Microsoft documents that define the output of MD5 as a “checksum,” or “cryptographic checksum,” or indicate that MD5 is indicative of a summation algorithm, ‘432 patent col. 9 ll.50–57, help to associate the MD5 procedure within the reasonable bounds of the word “summation.” It is reasonable to consider MD5 a summation algorithm where those skilled in the art refer to its output as a “hashsum” or an “MD5 sum.” Dr. Wallach had the opportunity to respond at trial. For example, in discussing Microsoft’s TechNet document, which included an entry, “Hashing. Hashing is also referred to as MD5 checksum,” Dr. Wallach and Uniloc’s attorney engaged in the following colloquy:

Q. Thank you. And so, then, apparently, you disagree that it would be fair to say that a—that an MD5 is a checksum?

A. MD5 is a cryptographic checksum. It's a specialized kind of checksum.

Q. No, no, I didn't ask that question.

A. Yes, you did.

Q. I said would you agree that it would be fair to refer to the MD5 as just a checksum, as specifically done in Microsoft's document here?

A. Computer scientists would call MD5 a cryptographic checksum to distinguish it from other kinds of checksums.

Microsoft has failed to show why a reasonable jury could not have rejected this distinction. Moreover, the district court's response to these documents is puzzling. The district court acknowledged that "[s]ome of these documents no doubt say that MD5 and SHA-1 are a type

of hash, or checksum," but noted that the documents did not show what "the complex hashes in *this case* actually do," *Uniloc II*, 640 F.Supp.2d at 172. However, MD5 and SHA-1 *are* the complex hashes in this case.

For the above reasons, this court concludes that a reasonable jury could rely on Klausner's testimony and the documentary evidence to conclude that MD5 and SHA1 *1307 were "summation algorithm[s]" as that phrase is used in the context of the '216 patent.

2. "Registration System" and "Mode Switching Means"

In the alternative, the district court granted JMOL of non-infringement because of Product Activation's failure to incorporate a "registration system" or "mode switching means" using the following constructions:

"Mode switching means"

Means plus function. "Function: to permit the digital data or software to run in a use mode if the locally generated licensee unique ID matches with the remotely generated licensee unique ID." and "Structure: program code which performs a comparison of two numbers or a comparator and equivalent thereof." *Uniloc I Claim Construction*, 447 F.Supp.2d at 198 (synonyms in the claim construction not relevant to the claim at issue are removed for simplicity).

"Registration system"

"A system that allows digital data or software to run in a use mode on a platform if and only if an appropriate licensing procedure has been followed." *Id.* at 202.

"Use mode"

"A mode that allows full use of the digital data or software in accordance with the license." *Id.* at 196.

These constructions are undisputed on appeal. It is also undisputed that the relevant "license" in the definition of "use mode" is the EULA, to which the user agrees prior to initiation of Product Activation in the accused product.

The crux of the question is whether the use of the accused products before Product Activation constitutes full use in accordance with the EULA.

Microsoft argues that the legal licensing occurred at the time the EULA was accepted by the user, and that

whatever use this permitted was full use in accordance with the license. In other words, because the terms of the EULA only give the user the right to use the accused products with certain temporal and functional restrictions, such restricted use *is* “full use” under the terms of the EULA, and “fulfill[s] the seller’s/licensor’s obligations in relation to the sale or license of the right to execute the digital data or software in the use mode.” ’216 patent col. 2 ll.42–44. Microsoft contrasts its system with that disclosed in the ’216 patent, which it says is limited to systems in which legal licensing and registration occur concurrently.

The district court agreed with Microsoft, holding that once the user agrees to the EULA, “the user becomes a licensee, and can use the software in accordance with the terms of the license, and with the provided functionality.... Activation itself simply opens additional doors which were previously locked to the licensee.” *Uniloc II*, 640 F.Supp.2d at 175–77.

¹⁷¹ Microsoft’s argument ultimately fails because it rests on the false factual premise that the functionality during the “grace period” between the EULA and Product Activation satisfies Microsoft’s obligations under the EULA. This factual premise is false for three reasons. First, the EULA accompanying Microsoft Office states: “**Mandatory Activation.** You may not be able to exercise Your rights to the Software Product under this EULA after a finite number of product launches unless You activate Your copy of the Software Product in the manner described during the launch sequence.” This sentence indicates that “rights ... under this EULA” are restricted unless the product is activated, and do not encompass some abstract right to full functionality. Consistently, the Windows EULA, in a clause discussing “**Mandatory Activation**” notes that “[t]he license rights granted under this EULA are limited to the first thirty (30) days after you first install the Product unless you supply information required to activate *1308 your licensed copy.” These “license rights granted under this EULA” are rights that had already been defined by the EULA without temporal or functional restrictions: “You may install, use, access, display and run one copy of the Product on a single computer,” subject only to limitations on the number of processors and computers that may use the program. Second, both the Windows license (“Microsoft grants you the following rights provided that you comply with all terms and conditions of this EULA”) and the Office license (“The license rights described in this Section are subject to all other terms and conditions of this EULA”) are conditional. Both also note that Product Activation is “[m]andatory.” Thus, unless the user activates the product, she is not entitled to the rights granted by the

EULA. Finally, Klausner testified that unless the accused products are activated, they cannot receive product updates or upgrades. However, the Windows EULA allows a user to install “updates, supplements, add-on components, or Internet-based services components, of the Product that Microsoft may provide to you or make available to you after the date you obtain your initial copy of the Product.” Thus, in order to have “full use ... in accordance with the license,” the user must have access to these upgrades. This only occurs upon activation.

This court thus concludes that use during the “grace period” after agreement to the EULA and before Product Activation in the accused product does not constitute full use in accordance with the EULA. It is undisputed that Product Activation lifts all the grace period restrictions if and only if the information entered indicates a legitimate copy of Office or Windows.

Moreover, the ’216 patent is not limited to the situation where activation and licensing are concurrent. In the preferred embodiment shown in Figures 2a-c, the registration system requires the user to view the license and to “continue” with the registration, far upstream of the activation. Until the user inputs confirmed payment details and plugs in a valid registration number, only the “demo version” of the software will run. Once the user performs these steps, the registration system switches the software into the “full version.” ’216 patent, Figs. 2a-c.

For the above reasons, the jury had substantial evidence to find that Microsoft’s Product Activation included a “registration system” and “mode switching means,” and thus the district court erred in granting JMOL of non-infringement on the basis of this limitation.

3. Alternative Ground for Affirmance: Licensee Unique ID

Microsoft also argues as an alternative ground for affirmance of JMOL that the output of its MD5 and SHA1 algorithms was not a licensee unique ID as required by claim 19 of the ’216 patent because it was not “associated with a licensee.” This argument was sufficiently addressed and decided against Microsoft by this court in the prior appeal, and is thus law of the case here. *Uniloc I*, 290 Fed.Appx. at 345 (reversing summary judgment of non-infringement and holding that the output of Product Activation “generate[s] what might qualify as a licensee unique ID, the hash value”).

4. Alternative Ground for Affirmance: Direct Infringement

Microsoft presents an alternative ground for affirmance of JMOL of non-infringement, on the basis that Uniloc failed to prove direct infringement because Microsoft did not supply or use the end-users' computers that implemented the local licensee unique ID generating means and mode switching means. Microsoft relies *1309 primarily on *Cross Medical Products, Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293 (Fed.Cir.2005), and a line of cases including *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318 (Fed.Cir.2008) and *BMC Res., Inc. v. Paymentech, L.P.*, 498 F.3d 1373 (Fed.Cir.2007). The district court rejected this argument in its JMOL opinion.

Microsoft's argument is severely hampered by the language of claim 19. Claim 19 is directed to "A remote registration station incorporating remote licensee unique ID generating means, said station forming part of a registration system ... including local licensee unique ID generating means..." '216 patent col.15 ll.21–26. As we noted in *BMC*, "[a] patentee can usually structure a claim to capture infringement by a single party," by "focus[ing] on one entity." 498 F.3d at 1381. This is exactly what Uniloc did in claim 19, which focuses exclusively on the "remote registration station," and defines the environment in which that registration station must function. It cannot be disputed that during each Product Activation, Microsoft "uses" a "remote registration station" that incorporates a "remote licensee unique ID generating means," and this station forms part of a "registration system" that also includes a "local licensee unique ID generating means" and a "mode switching means." That other parties are necessary to complete the environment in which the claimed element functions does not necessarily divide the infringement between the necessary parties. For example, a claim that reads "An algorithm incorporating means for receiving e-mails" may require two parties to function, but could nevertheless be infringed by the single party who uses an algorithm that receives e-mails.

The claim here is thus distinguishable from those at issue in *Muniauction* and *BMC*, because here, only one party, Microsoft, makes or uses the remote registration station. See *Muniauction*, 532 F.3d at 1329; *BMC*, 498 F.3d at 1373. Nor is claim 19 analogous to the claim at issue in *Cross Medical*. There, the claim called for "[a] fixation device comprising ... an anchor seat means which has a lower bone interface operatively joined to said bone segment." 424 F.3d at 1299 (citing U.S. Patent No. 5,474,555 col. 8 ll.33–41). This court construed "operatively joined" to mean that the interface and the bone must be in contact, *id.* at 1305, and held that Medtronic did not infringe the claims because "Medtronic

does not itself make an apparatus with the 'interface' portion in contact with bone," *id.* at 1311. Here, however, Microsoft *does* make and use the remote registration station in the environment required by the claims, when the MD5 and SHA1 generate a remote licensee unique ID. Moreover, this court agrees with the district court that "[a]ccepting Microsoft's argument that the local side of Claim 19 requires an end-user's participation, similar to the surgeons' participation in *Cross Medical*, would be akin to importing a method step into this software system—something the language of Claim 19 does not support." *Uniloc II*, 640 F.Supp.2d at 162.

5. New Trial on Infringement Issues

Citing the closeness of the questions presented on JMOL in this case, the district court also granted in the alternative Microsoft's motion for a new trial on infringement.

^[81] ^[9] This court's standard of review over a district court's grant of a motion for new trial is governed by regional circuit law. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1361 (Fed.Cir.1999). In the First Circuit, a new trial is only appropriate when "the outcome is against the clear weight of the evidence such that upholding the verdict will result in a miscarriage *1310 of justice." *Ramos v. Davis & Geck, Inc.*, 167 F.3d 727, 731 (1st Cir.1999). In contrast to JMOL, in considering a motion for a new trial, the district court may "independently weigh the evidence." *Jennings v. Jones*, 587 F.3d 430, 436 (1st Cir.2009).

^[10] "[A] district judge cannot displace a jury's verdict merely because he disagrees with it or because a contrary verdict may have been equally supportable. As we have repeatedly observed, trial judges do not sit as thirteenth jurors, empowered to reject any verdict with which they disagree." *Id.* (internal citation omitted). Nevertheless, the district court is entitled to deference in granting a new trial motion, and the First Circuit only overturns the grant of a new trial if the district court has abused its discretion. *Id.* at 435 (citing *Gasperini v. Ctr. For Humanities, Inc.*, 518 U.S. 415, 435, 116 S.Ct. 2211, 135 L.Ed.2d 659 (1996)). As the Supreme Court noted, "[t]rial judges have the unique opportunity to consider the evidence in the living courtroom context, while appellate judges see only the cold paper record." *Gasperini*, 518 U.S. at 438, 116 S.Ct. 2211.

The district court granted Microsoft's motion for a new trial on the infringement issues in the alternative to its

JMOL motion, and did not present any analysis apart from its analysis of the JMOL infringement issues discussed above. This court is convinced that the district court's grant of a new trial on infringement has no more merit than the district court's grant of JMOL on infringement. Though it is a close issue, this is not a situation where the evidence falls within the zone where substantial evidence supports the verdict and the district court's discretion in granting a new trial trumps such evidence. This court thus reverses the district court's grant of a new trial on infringement for the same reasons as it reverses the grant of JMOL of non-infringement.

B. JMOL and New Trial for Willfulness

¹¹¹ “[T]o establish willful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.” *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed.Cir.2007) (en banc). This is an objective inquiry. *Id.* In addition, a patentee must show that this risk “was either known or so obvious that it should have been known to the accused infringer.” *Id.* This is a subjective inquiry.

The district court concluded that no reasonable jury could have found that Microsoft's conduct fell under either *Seagate* prong. *Uniloc II*, 640 F.Supp.2d at 176–77 (objective prong), 177–79 (subjective prong). If the accused infringer's position is susceptible to a reasonable conclusion of no infringement, the first prong of *Seagate* cannot be met. See *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1374 (Fed.Cir.2008) (“Because ‘rigid’ was susceptible to a reasonable construction under which Waters's products did not infringe, there was not an objectively high likelihood that Waters's actions constituted infringement.”).

¹¹² Uniloc has failed to meet the threshold objective prong of *Seagate*. Uniloc has not presented *any* evidence at trial or on appeal showing why Microsoft, at the time it began infringement, could not have reasonably determined that MD5 and SHA1 did not meet the “licensee unique ID generating means,” “licensee unique ID,” or “registration system”/“mode switching means” limitations. Specifically, infringement of the “licensee unique ID generating means” limitation is a complicated issue, made more so because “equivalence requires an intensely factual *1311 inquiry,” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1337 (Fed.Cir.2009). Uniloc's argument about copying is largely inapposite. See *id.* at 1336 (“[E]vidence of

copying in a case of direct infringement is relevant only to *Seagate*'s second prong.”). As the district court noted, the facts here presented are “hardly the stuff of which objectively reckless unreasonable conduct is made.” *Uniloc II*, 640 F.Supp.2d at 177.

Given this court's conclusion that Uniloc failed to show that a reasonable jury could find Microsoft's conduct objectively reckless on the evidence presented, this court need not address the subjective prong of *Seagate*. This court thus affirms the district court's grant of JMOL of no willfulness, and need not address the district court's alternative grant of a new trial on willfulness.

C. New Trial on Damages

The jury here awarded Uniloc \$388 million, based on the testimony of Uniloc's expert, Dr. Gemini. Dr. Gemini opined that damages should be \$564,946,803. This was based on a hypothetical negotiation between Uniloc and Microsoft and the *Georgia-Pacific* factors. See *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F.Supp. 1116 (S.D.N.Y.1970). Gemini began with an internal pre-litigation Microsoft document that stated:

Product Keys are valuable for two major reasons. First, since Product Keys can be used to install a product and create a valid Product ID, you can associate a monetary value to them. An appraisal process found that a Product Key is worth anywhere between \$10 and \$10,000 depending on usage. Secondly, Product Keys contain short digital signature technology that Microsoft Research created. For these reasons, it is crucial that Product Keys are handled with maximum security.

In Limine, 632 F.Supp.2d at 150 n. 2. Gemini took the lowest value, \$10, and testified that this is “the isolated value of Product Activation.” Gemini then applied the so-called “25 percent rule of thumb,” hypothesizing that 25% of the value of the product would go to the patent owner and the other 75% would remain with Microsoft, resulting in a baseline royalty rate of \$2.50 per license issued. Gemini justified the use of the rule of thumb because it has “been accepted by Courts as an appropriate methodology in determining damages, in [his] experience, in other cases.” He then considered several of the *Georgia-Pacific* factors, with the idea being “to adjust this 25% up or down depending on how [the *Georgia-Pacific* factors] favor[] either party.” At bottom, he concluded that the factors in favor of Uniloc and Microsoft generally balanced out and did not change the royalty rate. He then multiplied the \$2.50 royalty rate by

the number of new licenses to Office and Windows products, 225,978,721, to get a final reasonable royalty of \$564,946,803. Gemini then “did kind of a check to determine whether that number was reasonable. It’s obviously, you know, a significant amount of money. I wanted to check to make sure it was a reasonable number.” The “check” was performed by “estimating the gross revenues for the accused products” by multiplying the 225,978,721 licenses by the average sales price per license of \$85. The resulting gross revenue value was \$19.28 billion. Gemini then calculated that his damages calculation resulted in a royalty rate over the gross revenue of Office and Windows of approximately 2.9%. Gemini presented this information in a demonstrative pie chart to accompany his testimony. In response to Uniloc’s attorney’s question: “And have you prepared a chart or a graph or a pie chart to show us this comparison?” Uniloc’s attorney, Mr. Cronin stated, “Your honor, there’s no objection,” *1312 and Microsoft attorney Mr. Scherkenbach stated, “Right, there is no objection.” Gemini then opined that “in my experience, and data I’ve seen as far as industry royalty rates for software, which are generally above—on average, above 10% or 10, 11%, I felt that this royalty was reasonable and well within that range.”

Microsoft had challenged the 25% rule *in limine* and attempted to exclude Mr. Gemini’s testimony. The district court noted that “the concept of a ‘rule of thumb’ is perplexing in an area of the law where reliability and precision are deemed paramount,” but rejected Microsoft’s position because the rule has been widely accepted. The district court thus considered the use of the rule of thumb to be reasonable. *In Limine*, 632 F.Supp.2d at 151. Microsoft contested Gemini’s use of the entire market value rule “check” because Product Activation was not the basis of the consumer demand for Microsoft’s Office and Windows products. The district court agreed with Microsoft, and granted a new trial on damages, because the “\$19 billion cat was never put back into the bag” and the jury may have “used the \$19 billion figure to ‘check’ its significant award of \$388,000,000.” *Uniloc II*, 640 F.Supp.2d at 185.

On appeal, the parties present the court with three damages issues: 1) the propriety of using the 25 percent rule; 2) application of the entire market value rule as a “check”; and 3) excessiveness of damages. Because this court affirms the district court’s conditional grant of a new trial on damages, this court need not reach the last issue.

I. 25 Percent Rule

¹³¹ Section 284 of Title 35 of the United States Code provides that on finding infringement of a valid patent, damages shall “in no event [be] less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.” In litigation, a reasonable royalty is often determined on the basis of a hypothetical negotiation, occurring between the parties at the time that infringement began. *Wang Labs. Inc. v. Toshiba Corp.*, 993 F.2d 858, 869–70 (Fed.Cir.1993). A reasonable royalty is the predominant measure of damages in patent infringement cases. William C. Rooklidge and Martha K. Gooding, *When Hypothetical Turns to Fantasy: The Patent Reasonable Royalty Hypothetical Negotiation*, BNA Insights Vol. 80:1983, at 701 n. 10 (“*Hypothetical Negotiation*”) (citing PriceWaterhouseCoopers, *A Closer Look: Patent Litigation Trends and the Increasing Impact of Nonpracticing Entities* at 5 (2009)).

The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of a patented product would be willing to offer to pay to the patentee during a hypothetical negotiation. Robert Goldscheider, John Jarosz and Carla Mulhern, *Use Of The 25 Per Cent Rule in Valuing IP*, 37 *les Nouvelles* 123, 123 (Dec. 2002) (“*Valuing IP*”). “The Rule suggests that the licensee pay a royalty rate equivalent to 25 per cent of its expected profits for the product that incorporates the IP at issue.” *Id.* As explained by its leading proponent, Robert Goldscheider, the rule takes the following form:

An estimate is made of the licensee’s expected profits for the product that embodies the IP at issue. Those profits are divided by the expected net sales over that same period to arrive at a profit rate. That resulting profit rate, say 16 per cent, is then multiplied by 25 per cent to arrive at a running royalty rate. In this example, the resulting royalty rate would be 4 per cent. Going forward (or calculating backwards, in the case of litigation), the 4 per cent *1313 royalty rate is applied to net sales to arrive at royalty payments due to the IP owner.

Id. at 124. The underlying “assumption is that the licensee should retain a majority (i.e. 75 percent) of the profits, because it has undertaken substantial development, operational and commercialization risks, contributed other technology/IP and/or brought to bear its own development, operational and commercialization contributions.” *Id.*

The rule was originally based on Goldscheider’s observations of commercial licenses entered into by a

“Swiss subsidiary of a large American company, with 18 licensees around the world, each having an exclusive territory.” *Id.* The rights transferred were a portfolio of patents and other intellectual property apparently related to the patented products. *Id.* The term of each of these licenses was for three years, with the expectation that the licenses would be renewed. *Id.* at 123. The licensees “faced strong competition,” and “were either first or second in sales volume, and probably profitability, in their respective market.” *Id.*

According to its proponents, the veracity of the 25 percent rule has been “confirmed by a careful examination of years of licensing and profit data, across companies and industries.” John C. Jarosz, Carla S. Mulhern and Michael Wagner, *The 25% Rule Lives On*, IP Law360, Sept. 8, 2010. Goldscheider published a further empirical study in 2002, concluding that across all industries, the median royalty rate was 22.6 percent, and that the data supported the use of the 25 percent rule “as a tool of analysis.” *Valuing IP*, 37 *les Nouvelles* at 132–33. Additionally, in a 1997 study of licensing organizations, 25 percent of the organizations indicated that they use the 25 percent rule as a starting point in negotiations. Stephen A. Degnan & Corwin Horton, *A Survey of Licensed Royalties*, 32 *les Nouvelles* 91, 95 (June 1997).

The 25 percent rule has, however, met its share of criticism that can be broadly separated into three categories. First, it fails to account for the unique relationship between the patent and the accused product. See Gregory K. Leonard and Lauren J. Stiroh, *Economic Approaches to Intellectual Property Policy, Litigation, and Management*, 949 PLI/Pat 425, 454–55 (Sept.–Nov. 2008) (“[The 25 percent rule] takes no account of the importance of the patent to the profits of the product sold, the potential availability of close substitutes or equally noninfringing alternatives, or any of the other idiosyncrasies of the patent at issue that would have affected a real-world negotiation.”); Richard S. Toikka, *Patent Licensing Under Competitive and Non-Competitive Conditions*, 82 J. Pat. & Trademark Off. Soc’y 279, 292–93 (Apr. 2000) (arguing that it fails to “distinguish between monopoly and normal profit.... Thus for narrow patents, the rule may be overly generous to the patentee, and for broad patents it may be overly stingy”). Second, it fails to account for the unique relationship between the parties. See Ted Hagelin, *Valuation of Patent Licenses*, Tex. Intell. Prop. L.J. 423, 425–26 (Spring 2004) (noting that the rule should not be used in isolation because it fails to “account[] for the different levels of risk assumed by a licensor and licensee”); *Hypothetical Negotiations* at 702 (“[T]he rule is unlikely to have any basis in the accused infringer’s industry, in the technology

involved in either the patent or the accused product or service, or in the claimed invention’s contribution to the infringing product or service.”). Finally, the rule is essentially arbitrary and does not fit within the model of the hypothetical negotiation within which it is based. See Roy J. Epstein and Alan J. Marcus, *Economic Analysis of the Reasonable Royalty: *1314 Simplification and Extension of the Georgia–Pacific Factors*, 85 J. Pat. & Trademark Off. Soc’y 55, 574 (July 2003) (“[The 25% and the 5%] rules of thumb are best understood as special cases [] that may be appropriate to a given situation only by chance.”); Roy J. Epstein, *Modeling Patent Damages: Rigorous and Defensible Calculations* (2003) (paper presented at the AIPLA 2003 Annual Meeting) at 22 available at http://www.royepstein.com/epstein_aipla_2003_article_website.pdf (last accessed Nov. 19, 2010) (arguing that the 25% rule “shortcut” “is essentially arbitrary. Because it is based on ex post results, it does not necessarily relate to the results of a negotiation that took place prior to the infringement”).

The admissibility of the bare 25 percent rule has never been squarely presented to this court. Nevertheless, this court has passively tolerated its use where its acceptability has not been the focus of the case, see e.g., *i4i Ltd.*, 598 F.3d 831; *Fonar Corp. v. General Elec. Co.*, 107 F.3d 1543, 1553 (Fed.Cir.1997), or where the parties disputed only the percentage to be applied (i.e. one-quarter to one-third), but agreed as to the rule’s appropriateness, *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1210–11 (Fed.Cir.2010). Lower courts have invariably admitted evidence based on the 25% rule, largely in reliance on its widespread acceptance or because its admissibility was uncontested. See *In Limine*, 632 F.Supp.2d at 151 (“The ‘25% Rule’ has been accepted as a proper baseline from which to start [a royalty] analysis.” (internal citations omitted)); *GSI Grp., Inc. v. Sukup Mfg., Co.*, 641 F.Supp.2d 732, 745 (C.D.Ill.2008) (same); *i4i Ltd. P’ship v. Microsoft Corp.*, 670 F.Supp.2d 568, 592 (E.D.Tex.2009), *aff’d on other grounds* by 598 F.3d 831 (“[i4i’s expert] testified that it was customary within his field to apply a ‘25% rule of thumb’.... Thus, considering the foundation laid by [i4i’s expert’s] testimony, his application of the 25% rule was relevant and appropriate considered.”); *Static Control Components, Inc. v. Lexmark Int’l, Inc.*, Nos. 5:02–571, 5:04–84, 2007 WL 7083655 at *13–14 (E.D.Ky. May 12, 2007) (“While Lexmark does not believe the ‘rule of thumb’ approach is the most appropriate way to calculate ‘reasonable royalty,’ as SCC correctly notes, case law suggests it is one way of doing so” (citing *Standard Mfg. Co. v. United States*, 42 Fed.Cl. 748, 766 (1999))); *Novozymes A/S v. Genencor Int’l, Inc.*, 474 F.Supp.2d 592, 606

(D.Del.2007) (“While there is no particular analytical justification for [the rule of thumb], it has been used to estimate royalties.”); *Inline Connection Corp. v. AOL Time Warner Inc.*, 470 F.Supp.2d 424, 432 n. 38 (D.Del.2007) (allowing 25% rule because its use was not disputed); *Bose Corp. v. JBL, Inc.*, 112 F.Supp.2d 138, 167 (D.Mass.2000) (“Courts have found the 25%/75% approach to be a useful approach to arriving at a baseline royalty rate.... [The opposing expert] conceded that this approach is a common and reasonable one, though he has never used that approach in negotiating licenses” (citing *Standard Mfg.*, 42 Fed.Cl. at 764)); *Standard Mfg.*, 42 Fed.Cl. at 766 (“[T]he 25% rule or a close variant of it has been recognized by a number of other federal courts as a ‘rule of thumb’ or ‘typical’ in the licensing field.”); *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F.Supp. 547, 612 (D.Del.1997) (“Although the Court will consider the Rule-of-Thumb analysis in determining the royalty rate, this approach will not receive substantial weight.”); *Secure Energy, Inc. v. Coal Synthetics, LLC*, No. 4:08-CV-1719, 2010 WL 1692076 at *1 (E.D.Mo. Apr.27, 2010) (“The parties agree that application of the 25% ‘rule of thumb’ is acceptable to determine a reasonable royalty case such as this.”). See also *Paice LLC v. Toyota Motor Corp.*, 609 F.Supp.2d 620, 629–30 (E.D.Tex.2009) (applying *1315 25% rule without discussion); *EZ Dock, Inc. v. Schafer Sys., Inc.*, No. 98–2364, 2003 WL 1610781 (D.Minn. Mar.8, 2003) (same). In at least one case, the district court admitted the evidence, but refused to give it substantial weight because, “neither expert testified as to the customary profit percentage used to set the royalty rates in licenses in other businesses” and because “[t]here was no testimony advocating the use of the [*sic*] this approach as an appropriate guidepost for the determination of a royalty rate under a *Georgia-Pacific* analysis.” *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F.Supp. at 612.

In *Daubert*, 509 U.S. at 589, 113 S.Ct. 2786 and *Kumho Tire*, 526 U.S. 137, 119 S.Ct. 1167, the Supreme Court assigned to the district courts the responsibility of ensuring that all expert testimony must pertain to “scientific, technical, or other specialized knowledge” under Federal Rule of Evidence (“FRE”) 702, which in turn required the judge to determine that the testimony was based on a firm scientific or technical grounding. *Daubert*, 509 U.S. at 589–90, 113 S.Ct. 2786; *Kumho Tire*, 526 U.S. at 148, 119 S.Ct. 1167. “Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.” *Daubert*, 509 U.S. at 591, 113 S.Ct. 2786 (citing 3 Weinstein & Berger ¶ 702[02], p. 702–18).

^[14] This court now holds as a matter of Federal Circuit law that the 25 percent rule of thumb is a fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation. Evidence relying on the 25 percent rule of thumb is thus inadmissible under *Daubert* and the Federal Rules of Evidence, because it fails to tie a reasonable royalty base to the facts of the case at issue.

^[15] The patentee bears the burden of proving damages. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed.Cir.2009). To properly carry this burden, the patentee must “sufficiently [tie the expert testimony on damages] to the facts of the case.” *Daubert*, 509 U.S. at 591, 113 S.Ct. 2786 (“An additional consideration under Rule 702—and another aspect of relevancy—is whether expert testimony proffered in the case is sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.”) (citing *United States v. Downing*, 753 F.2d 1224, 1242 (3d Cir.1985)). If the patentee fails to tie the theory to the facts of the case, the testimony must be excluded. For example, in *General Electric Co. v. Joiner*, 522 U.S. 136, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997), the Supreme Court allowed the exclusion of eight of Joiner’s experts who opined that polychlorinated biphenyls (“PCBs”) could cause cancer on the strength of several studies showing that mice receiving high doses of PCB developed cancer. The Supreme Court noted that “[t]he studies were so dissimilar to the facts presented in this litigation that it was not an abuse of discretion for the District Court to have rejected the experts’ reliance on them,” *id.* at 144–45, 118 S.Ct. 512, and affirmed the exclusion because Joiner had failed to tie the experts’ opinions to the “seemingly far-removed animal studies,” *id.* at 144, 118 S.Ct. 512. Likewise, in *Kumho Tire*, a products liability case arising out of a blown tire, the Supreme Court affirmed the exclusion of an expert opinion that argued that the cause of the accident at issue was a defect in the tire, based on the expert’s visual and tactile inspection of the tire. 526 U.S. at 153, 119 S.Ct. 1167. The specific issue was not whether the visual and tactile inspection methodology was “reasonable[] in general,” but whether “it was [reasonable to] us[e] such an approach ... to draw a conclusion regarding the particular matter to which the expert testimony was directly relevant.” *Id.* at 153–54, 119 S.Ct. 1167. *1316 “The relevant issue was whether the expert could reliably determine the cause of this tire’s separation.” *Id.* at 154, 119 S.Ct. 1167. The Court held that the expert had failed to reliably opine on this issue under *Daubert* because his general theory—“that in the absence of at least two of four signs of abuse ... he concludes that a defect caused the separation,” *id.*—did not take into account the facts of the particular tire at issue: that the tire “had traveled far enough so that some of the tread had been worn bald; it

should have been taken out of service; it had been repaired (inadequately) for punctures; and it bore some of the very marks that the expert said indicated, not a defect, but abuse through overdeflection.” *Id.* In responding to the plaintiff’s argument, “that a method of tire failure analysis that employs a visual/tactile inspection is a reliable method,” based on “its use by other experts and to Carlson’s [the expert in the case] long experience working for Michelin,” the Court reaffirmed that “the question before the trial court was specific, not general.” *Id.* The trial court had to decide whether this particular expert had sufficient specialized knowledge to assist the jurors ‘in deciding the particular issues in the case.’ *Id.* at 156, 119 S.Ct. 1167. The Court held that he did not.

The bottom line of *Kumho Tire* and *Joiner* is that one major determinant of whether an expert should be excluded under *Daubert* is whether he has justified the application of a general theory to the facts of the case. Consistent with this conclusion, this court has held that “[a]ny evidence unrelated to the claimed invention does not support compensation for infringement but punishes beyond the reach of the statute.” *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed.Cir.2010).

In *ResQNet, Lucent Technologies*, 580 F.3d 1301, and *Wordtech Systems, Inc. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308 (Fed.Cir.2010), this court determined that a patentee could not rely on license agreements that were “radically different from the hypothetical agreement under consideration” to determine a reasonable royalty. *Lucent Techs.*, 580 F.3d at 1327. See also *ResQNet*, 594 F.3d at 870–72 (holding that evidence of royalty rates from licenses without a relationship to the claimed invention could not form the basis of a reasonable royalty calculation). In *Lucent Technologies*, the patentee’s expert relied in large part on “eight varied license agreements,” four of which involved “PC-related patents,” but either the specific subject matter of the patents was not explained to the jury or the license was “directed to a vastly different situation than the hypothetical licensing scenario of the present case,” and four of which Lucent did not describe the relationship between the patented technology licensed therein and the licensee’s products. See 580 F.3d at 1328–31. This court noted that the “licenses relied on by the patentee in proving damages [must be] sufficiently comparable to the hypothetical license at issue in suit,” *id.* at 1325, and that the patentee’s failure to do so “weighs strongly against the jury’s award” relying on such non-comparable licenses, *id.* at 1332. Similarly, in *ResQNet*, the patentee’s expert “used licenses with no relationship to the claimed invention to drive the royalty rate up to unjustified double-digit levels,” looking at licenses that did not mention the

patents and had no “other discernible link to the claimed technology.” 594 F.3d at 870. This court rejected the expert’s testimony, holding that the district court “must consider licenses that are commensurate with what the defendant has appropriated. If not, a prevailing plaintiff would be free to inflate the reasonable royalty analysis with conveniently selected licenses without an economic or other link to the technology *1317 in question.” *Id.* at 872. This court held that on remand, “the trial court should not rely on unrelated licenses to increase the reasonable royalty rate above rates more clearly linked to the economic demand for the claimed technology.” *Id.* at 872–73.

Similarly, in *Wordtech*, the patentee “introduced thirteen patent licenses that it previously granted to third parties for rights to some or all of the patents-in-suit” to argue to support the jury’s damages determination. 609 F.3d at 1319. This court rejected eleven of the licenses because they were running royalty licenses (the patentee had only asked for a lump sum payment) and represented far lower rates than the jury returned. *Id.* at 1320–21. This court rejected the remaining two licenses (both for lump sum payments) because “[n]either license describe[d] how the parties calculated each lump sum, the licensee’s intended products, or how many products each licensee expected to produce.” *Id.* at 1320.

The meaning of these cases is clear: there must be a basis in fact to associate the royalty rates used in prior licenses to the particular hypothetical negotiation at issue in the case. The 25 percent rule of thumb as an abstract and largely theoretical construct fails to satisfy this fundamental requirement. The rule does not say anything about a particular hypothetical negotiation or reasonable royalty involving any particular technology, industry, or party. Relying on the 25 percent rule of thumb in a reasonable royalty calculation is far more unreliable and irrelevant than reliance on parties’ unrelated licenses, which we rejected in *ResQNet* and *Lucent Technologies*. There, the prior licenses at least involved the same general industry and at least some of the same parties as the hypothetical negotiations at issue, and in *Wordtech* even involved licenses to the patents in suit entered into by the patentee-plaintiff. Lacking even these minimal connections, the 25 percent rule of thumb would predict that the same 25%/75% royalty split would begin royalty discussions between, for example, (a) TinyCo and IBM over a strong patent portfolio of twelve patents covering various aspects of a pioneering hard drive, and (b) Kodak and Fuji over a single patent to a tiny improvement in a specialty film emulsion.

It is of no moment that the 25 percent rule of thumb is

offered merely as a starting point to which the *Georgia-Pacific* factors are then applied to bring the rate up or down. Beginning from a fundamentally flawed premise and adjusting it based on legitimate considerations specific to the facts of the case nevertheless results in a fundamentally flawed conclusion. This is reflected in *Lucent Technologies*, in which unrelated licenses were considered under *Georgia-Pacific* factor 1, but this court held that the entire royalty calculation was unsupported by substantial evidence.

^[16] To be admissible, expert testimony opining on a reasonable royalty rate must “carefully tie proof of damages to the claimed invention’s footprint in the market place.” *ResQNet*, 594 F.3d at 869. This court has sanctioned the use of the *Georgia-Pacific* factors to frame the reasonable royalty inquiry. Those factors properly tie the reasonable royalty calculation to the facts of the hypothetical negotiation at issue. This court’s rejection of the 25 percent rule of thumb is not intended to limit the application of any of the *Georgia-Pacific* factors. In particular, factors 1 and 2—looking at royalties paid or received in licenses for the patent in suit or in comparable licenses—and factor 12—looking at the portion of profit that may be customarily allowed in the particular business for the use of the invention or similar inventions—remain valid and important factors in the determination of a reasonable *1318 royalty rate. However, evidence purporting to apply to these, and any other factors, must be tied to the relevant facts and circumstances of the particular case at issue and the hypothetical negotiations that would have taken place in light of those facts and circumstances at the relevant time.

In this case, it is clear that Gemini’s testimony was based on the use of the 25% rule of thumb as an arbitrary, general rule, unrelated to the facts of this case. When asked the basis of his opinion that the rule of thumb would apply here, Gemini testified: “[i]t’s generally accepted. I’ve used it. I’ve seen others use it. It’s a widely accepted rule.” Upon further questioning, Dr. Gemini revealed that he had been involved in only four or five non-litigation related negotiations, and had recommended the 25% rule only once in a case involving a power tool. He did not testify that the parties here had a practice of beginning negotiations with a 25%/75% split, or that the contribution of Product Activation to Office and Word justified such a split. He did not base his 25 percent baseline on other licenses involving the patent at issue or comparable licenses. In short, Gemini’s starting point of a 25 percent royalty had no relation to the facts of the case, and as such, was arbitrary, unreliable, and irrelevant. The use of such a rule fails to pass muster under *Daubert* and taints the jury’s damages calculation.

This court thus holds that Microsoft is entitled to a new trial on damages.

2. Entire Market Value Rule

As discussed above, Gemini performed “a check to determine whether” his \$564,946,803 royalty figure was reasonable by comparing it to his calculation of Microsoft’s approximate total revenue for Office and Windows of \$19.28 billion. During trial, Gemini testified that his calculated royalty accounted for only 2.9% of Microsoft’s revenue, and accented his point by reference to a prepared pie chart, showing Microsoft’s \$19.28 billion in revenue with a 2.9% sliver representing his calculated royalty rate. He concluded that 2.9% was a reasonable royalty based on his experience that royalty rates for software are “generally above—on average, above 10% or 10, 11%.”

^[17] The entire market value rule allows a patentee to assess damages based on the entire market value of the accused product only where the patented feature creates the “basis for customer demand” or “substantially create[s] the value of the component parts.” *Lucent Techs.*, 580 F.3d at 1336; *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1549–50 (Fed.Cir.1995). This rule is derived from Supreme Court precedent requiring that “the patentee ... must in every case give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative,” or show that “the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.” *Garretson v. Clark*, 111 U.S. 120, 121, 4 S.Ct. 291, 28 L.Ed. 371 (1884). See also *Lucent Techs.*, 580 F.3d at 1336–37 (tracing the origins of the entire market value to several Supreme Court cases including *Garretson*).

Microsoft argues that Uniloc employed the entire market value of Office and Windows by virtue of Gemini’s pie chart, his comparison of his calculated royalty to the total revenue Microsoft earns through the accused products, and Uniloc’s attorneys’ belittlement of Microsoft’s expert’s royalty figure as representing only .0003% of total revenue. Microsoft argues that Uniloc’s *1319 use of the entire market value rule was not proper because it is undisputed that Product Activation did not create the basis for customer demand or substantially create the value of the component parts. Microsoft continues that Gemini’s

testimony tainted the jury's damages deliberations, regardless of its categorization as a "check."

Uniloc responds that: (1) Microsoft did not object at trial and so waived any evidentiary argument to Gemini's testimony and demonstratives; (2) the entire market value of the product can be used if the royalty rate is low enough; and (3) the \$19 billion figure was used only as a "check," and the jury was instructed not to base its damages determination on the entire market value, an instruction it should be presumed to have followed.

The district court agreed with Microsoft, and ordered a conditional new trial on damages. It noted that "Uniloc conceded customers do not buy Office or Windows because of [Product Activation] and said it would not base a royalty calculation on the entire market value of the products." *Uniloc II*, 640 F.Supp.2d at 184–85. As such, the use of the entire market value of Office and Windows in the form of the \$19 billion figure was "irrelevant" and "taint[ed]" the jury's damages award. *Id.* at 185. The district court also disagreed with Uniloc that Microsoft had waived its arguments to the entire market value, noting that "Microsoft objected specifically under the entire market value rule to use of a demonstrative pie chart," and that "[t]he Court preliminarily allowed it but after hearing the testimony instructed counsel to stay away from the \$19 billion figure." *Id.*

¹⁸¹ This court agrees with Microsoft and the district court that Uniloc's use of the \$19 billion "check" was improper under the entire market value rule. First, regarding Uniloc's assertion that Microsoft has waived the issue, this court will not second-guess the district court's explicit recognition of Microsoft's objections to Gemini's testimony. FRE 103(a) notes that "Error may not be predicated upon a ruling which admits or excludes evidence unless ... (1) Objection.—In case the ruling is one admitting evidence, a timely objection or motion to strike appears of record.... Once the court makes a definitive ruling on the record admitting or excluding evidence, either at or before trial, a party need not renew an objection or offer of proof to preserve a claim of error for appeal." The district court here explicitly noted that Microsoft's objection fell into the exception at the last line of FRE 103(a): "Although Microsoft did not continue to repeat an objection, it made its position on this evidence sufficiently clear to preserve the instant challenge" to Gemini's use of the entire market value rule. *Uniloc II*, 640 F.Supp.2d at 184 n. 43. This is supported by Microsoft's *in limine* filings and Uniloc's response, where Uniloc explicitly said that it would not be relying on the entire market value of the accused products. This court thus agrees with the district court that

Microsoft has not waived its objection.

Uniloc argues that the entire market value of the products may appropriately be admitted if the royalty rate is low enough, relying on the following statement in *Lucent Technologies*:

Simply put, the base used in a running royalty calculation can always be the value of the entire commercial embodiment, as long as the magnitude of the rate is within an acceptable range (as determined by the evidence)... Microsoft surely would have little reason to complain about the supposed application of the entire market value rule had the jury applied a royalty rate of .1% (instead of 8%) to the market price of the infringing programs."

*1320 580 F.3d at 1338–39. Just before this statement, however, this court held that one of the flaws in the use of the entire market value in that case was "the lack of evidence demonstrating the patented method of the Day patent as the basis—or even a substantial basis—of the consumer demand for Outlook.... [t]he only reasonable conclusion supported by the evidence is that the infringing use of the date-picker tool in Outlook is but a very small component of a much larger software program." *Id.* at 1338. Thus, in context, the passage relied on by Uniloc does not support its position. The Supreme Court and this court's precedents do not allow consideration of the entire market value of accused products for minor patent improvements simply by asserting a low enough royalty rate. See *Garretson*, 111 U.S. at 121, 4 S.Ct. 291; *Lucent Techs.*, 580 F.3d at 1336 ("In one sense, our law on the entire market value rule is quite clear. For the entire market value rule to apply, the patentee *must* prove that the patent-related feature is the basis for customer demand" (emphasis added, internal citations omitted)); *Rite-Hite*, 56 F.3d at 1549 (same); *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1361 (Fed.Cir.2001) (same); *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 901 (Fed.Cir.1986) ("The entire market value rule allows for the recovery of damages based on the value of an entire apparatus containing several features, when the feature patented constitutes the basis for customer demand.").

This case provides a good example of the danger of admitting consideration of the entire market value of the accused where the patented component does not create the basis for customer demand. As the district court aptly noted, "[t]he \$19 billion cat was never put back into the bag even by Microsoft's cross-examination of Mr. Gemini and re-direct of Mr. Napper, and in spite of a final instruction that the jury may not award damages based on Microsoft's entire revenue from all the accused products in the case." *Uniloc II*, 640 F.Supp.2d at 185. This is

unsurprising. The disclosure that a company has made \$19 billion dollars in revenue from an infringing product cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue. Uniloc exacerbated the situation in colloquies like the following on cross-examination of Microsoft's damages expert, in which it implied a relationship between the entire market value of the accused products and the patent:

Q [Uniloc]. You understand that there are approximately \$20 billion in sales of infringing product, correct?

A [Napper]. That's the calculation by Mr. Gemini, yes, the entire market value of those products.

Q. And you understand your lump-sum max theory is \$7 million?

A. Yes.

Q. And that would be an effective royalty of approximately .000035%?

A. If one were inappropriately putting the entire market value of the products, that's what it would result in.

Q. Uniloc invents it, correct?

A. They have a patent, yes.

Q. And under your theory, Microsoft goes out and infringes a valid patent, right?

A. That's my assumption.

Q. Under your theory, Microsoft brings in billions in revenue and sales from the sales of the infringing product, to wit, approximately 20, correct?

A. The entire market value of those products, that's correct.

Q. And at the end of the day, the infringer, Microsoft, who violated the patent law, they get to keep 99.9999% of the box and the inventor, whose patent *1321 they infringed, he gets the privilege of keeping .00003%?

A. When expressed as the entire market value of the products, that's correct.

Q. And that's reasonable to you?

A. Yes.

This is in clear derogation of the entire market value rule, because the entire market value of the accused products

has not been shown to be derived from the patented contribution.

Uniloc's final argument is that the use of the \$19 billion figure was only as a check, and the jury must be presumed to have followed the jury instruction and not based its damages calculation on the entire market value rule. This argument attempts to gloss over the purpose of the check as lending legitimacy to the reasonableness of Gemini's \$565 million damages calculation. Even if the jury's damages calculation was not based wholly on the entire market value check, the award was supported in part by the faulty foundation of the entire market value. Moreover, Uniloc's derision of Microsoft's damages expert by virtue of the .00003% of the entire market value that his damages calculation represented may have inappropriately contributed to the jury's rejection of his calculations. Thus, the fact that the entire market value was brought in as only a "check" is of no moment.

For the foregoing reasons, this court concludes that the district court did not abuse its discretion in granting a conditional new trial on damages for Uniloc's violation of the entire market value rule.

3. Excessiveness of Damages

As an alternative ground for affirmance of the district court's alternative grant of a new trial on damages, Microsoft argues that the damages here were excessive. Because this court is affirming the district court's grant of new trial on damages, and because the two bases on which Uniloc's damages case was built have both been rejected, it would be premature to consider the excessiveness of damages that could arise on remand. This court thus expresses no opinion on the excessiveness or reasonableness of the damages awarded by the jury.

D. Cross-Appeal

Microsoft also cross-appeals the district court's denial of its motion for JMOL of invalidity. Microsoft argues that under Uniloc's interpretation of the claim construction in its infringement case, claim 19 is invalid as anticipated or obvious over [U.S. Patent No. 4,658,093](#) ("['093 reference](#)") titled, "Software Distribution System."

Before this court addresses the merits, two procedural issues must be addressed. First, Microsoft argues that its

burden for both the new trial and JMOL motions was to show invalidity simply by a preponderance of the evidence, because the '093 reference was not before the PTO. This argument is based on a statement in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 426, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) (“[T]he rationale underlying the presumption—that the PTO, in its expertise, has approved the claim—seems much diminished here [where the allegedly invalidating prior art was not before the patent office].”). Microsoft has made this argument before, and we held that the statutory presumption of validity can be overcome only by showing invalidity by clear and convincing evidence, even where allegedly invalidating prior art was not before the patent office. See *i4i*, 598 F.3d at 848, cert. granted 562 U.S. —, 131 S.Ct. 647, 178 L.Ed.2d 476 (2010); *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed.Cir.1984). Until changed by the Supreme Court or this court sitting en banc, that is still the law.

*1322 Second, Microsoft argues that the district court’s grant of a new trial extended to validity even though the district court did not mention validity in the new trial section of its opinion. See *Uniloc II*, 640 F.Supp.2d at 183–86. Microsoft failed to raise this issue in its motion for a new trial, and this court finds no basis to conclude that the district court implicitly decided the issue. The issue is thus not before this court and we do not reach it.

Turning then to the merits. Microsoft frames its validity arguments as follows: if claim 19 reaches far enough to read on Microsoft’s Product Activation, then it necessarily extends far enough to read on the prior art ’093 reference. Thus, Microsoft uses Product Activation as a proxy for the scope of claim 19 (under the assumption that the jury verdict of infringement is upheld and Product Activation infringes), and compares it to the ’093 reference. According to Microsoft, the prior art ’093 reference discloses a software authorization process and system, which generates an authorization code from the following inputs: “a secret key identifier of the computer embodied in the hardware (SK), a random or nonrepeating number (R), the serial number, the software package name (H), the number of uses (N), and user billing information.” *Uniloc II*, 640 F.Supp.2d at 181.

In the prior appeal, this court held that the licensee unique ID must be “a unique identifier associated with a licensee,” but one “that cannot be based solely on platform-related user information.” *Uniloc I*, 290 Fed.Appx. at 343–44. The question in this appeal is whether no reasonable jury could have concluded that the inputs to the cryptographic hash function in the ’093 reference are not sufficient to create an association with

the licensee. The focus of the dispute on appeal, just as below, is whether random number R in the ’093 reference is uniquely associated with a user. We think that it is not and that the ’093 reference does not anticipate claim 19.

Uniloc argues that R is “platform-related” because it is generated by the user’s computer. Microsoft argues that “platform-related” must be narrower than “generated by a computer,” otherwise it could not infringe because the output of Product Activation (the PID) is also generated by a computer.

It is undisputed that R and SK, the only inputs that Microsoft argues are associated with the user, are generated by the computer.³ In the prior appeal, this court noted that the licensee unique ID “cannot be based solely on platform related user information.” *Id.* at 343. This was based in part on Uniloc’s distinction made during prosecution of the ’216 patent between its invention and a prior art reference that “relie[d] for its security on a machine identification code unique to the machine.” *Id.* at 343–44. The number R in the ’093 reference does just what the distinguished prior art does: whatever association it creates does not identify the user, but rather it identifies the machine. In other words, the R in the ’093 reference is platform-related, and thus cannot form the basis of the association between the output of the cryptographic hash function and the licensee. The same is true for SK, which is based on a computer-generated serial number.

Microsoft’s argument that R is not platform-related though it is generated by a computer (without user input) is unconvincing for two reasons. First, the proper *1323 framework for challenging the validity of a patent is not for the accused to show that it is practicing the prior art, but to show that every element of the patent claims reads on a single prior art reference. See *Zenith Elecs. Corp. v. PDI Comm. Sys., Inc.*, 522 F.3d 1348, 1363 (Fed.Cir.2008) (“[M]ere proof that the prior art is identical, in all material respects, to an allegedly infringing product cannot constitute clear and convincing evidence of invalidity. Anticipation requires a showing that each element of the claim at issue, properly construed, is found in a single prior art reference.”). Second, although the *output* of the hash algorithm in Product Activation, the PID, is computer generated, the information that is *input* into the MD5 algorithm is associated with a user, in the form of the product key provided by the vendor. This court has held that it is reasonable to determine that such information creates an association with the user. *Uniloc I*, 290 Fed.Appx. at 343 n. 4 (“The specification [of the ’216 patent] certainly does allow for the use of vendor-provided information to

generate a licensee unique ID.”). As noted, *supra* section II.A.3, this court is bound by the first appeal that inputs associated with the licensee are sufficient to maintain the association in the *output* as well. *See also Uniloc I*, 290 Fed.Appx. at 344 (“Microsoft’s Product Activation system inputs non-platform-related information unique to a user, such as a Product Key, to generate what might qualify as a licensee unique ID.”). Unlike the PID, the output of the hash algorithm in the ’093 reference is “based solely on platform-related user information,” *see id.* at 343, in the form of R and SK, neither of which are “vendor-provided,” and both of which are generated by the user’s computer. The PID is thus distinguishable from the output of the hash algorithm in the ’093 reference, and a reasonable jury could have returned a verdict that the ’093 reference does not disclose a “licensee unique ID” as required by claim 19 of the ’216 patent. This court thus affirms the district court’s denial of JMOL of invalidity based on anticipation.

¹⁹¹ Though obviousness is a question of law, this court gives the jury its usual deference on the underlying factual questions. What the prior art shows is a question of fact. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). As discussed above, a reasonable jury could have found that the ’093 reference failed to disclose a licensee unique ID. Microsoft has presented no convincing argument for why incorporating an input into the hash function that is associated with a user would have been obvious to one of ordinary skill in the art. This court thus affirms the district court’s denial

Footnotes

- 1 As discussed in the animation referred to, *infra*, the only differences between MD5 and SHA-1 are the added logical operation group and shifting step in SHA-1. Throughout this litigation, the two algorithms have been treated as functionally identical for infringement purposes. For ease of presentation, this opinion discusses only the MD5 algorithm, but it is uncontested that the same analysis applies to both.
- 2 For demonstration purposes, we use an 8-bit number, though the MD5 algorithm uses a 32-bit number. Four of the characters are italicized to demonstrate the effect of the circular shifter.
- 3 The “user billing information” in the ’093 reference is not an input into the hash function and is thus irrelevant in determining whether the ’093 reference discloses the “licensee unique ID” and “licensee unique ID generating means” elements of the ’216 patent.

of JMOL of invalidity on the basis of obviousness.

Conclusion

For the foregoing reasons, this court reverses the district court’s grant of JMOL of non-infringement, affirms the district court’s grant of JMOL of no willfulness, affirms the district court’s grant of a new trial on damages, vacates the district court’s grant of an alternative motion for new trial on infringement, and affirms the district court’s denial of JMOL of invalidity of claim 19 of the ’216. The case is remanded for proceedings consistent with this opinion.

**AFFIRMED–IN–PART, REVERSED–IN–PART,
VACATED–IN–PART, and REMANDED**

Costs

Each party shall bear its own costs.

All Citations

632 F.3d 1292, 98 U.S.P.Q.2d 1203

 KeyCite Yellow Flag - Negative Treatment
Declined to Extend by [EcoServices, LLC v. Certified Aviation Services, LLC](#), C.D.Cal., May 18, 2017

792 F.3d 1339
United States Court of Appeals,
Federal Circuit.

Richard A. WILLIAMSON, Trustee for at
Home Bondholders Liquidating Trust,
Plaintiff–Appellant

v.

CITRIX ONLINE, LLC, Citrix Systems,
Inc., Microsoft Corporation, Adobe
Systems, Inc., Defendants–Appellees
Webex Communications, Inc., Cisco
Webex, LLC, Cisco Systems, Inc.,
Defendants–Appellees
International Business Machines
Corporation, Defendant–Appellee.

No. 2013–1130.
|
June 16, 2015.

Synopsis

Background: Patentee brought action alleging infringement of patent for system and method of distributed learning. The United States District Court for the Central District of California, [A. Howard Matz, J.](#), entered stipulated judgment in alleged infringers’ favor, and patentee appealed.

Holdings: The Court of Appeals, [Linn](#), Circuit Judge, held that:

[1] claims requiring “graphical display” representative of classroom did not require pictorial map that identified participants’ location;

[2] presumption that the means-plus-function statute does not apply to a patent claim that does not use the word “means” is not strong, overruling *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286;

[3] term “distributed learning control module,” as used in patent was means-plus-function claim term; and

[4] specification did not disclose sufficient structure corresponding to the “distributed learning control module” referred to in means-plus-function claims, making those claims invalid for indefiniteness.

Affirmed in part, vacated in part, and remanded.

[Reyna](#), Circuit Judge, filed opinion concurring in part and dissenting in part.

Opinion, [770 F.3d 1371](#), superseded on rehearing.

West Headnotes (21)

[1] Patents Construction and Operation of Patents

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 7 Appellate Review
291 k 1965 Scope, Standard, and Extent of Review
291 k 1970 Particular Matters
291 k 1970 (12) Construction and Operation of Patents
291 k 1970 (13) In general

District court’s claim construction determinations based on evidence intrinsic to the patent as well as its ultimate interpretations of the patent claims are legal questions reviewed de novo.

[25 Cases that cite this headnote](#)

[2] Patents Construction and Operation of Patents

291 Patents
291 VII Patent Infringement
291 VII (C) Actions
291 VII (C) 7 Appellate Review
291 k 1965 Scope, Standard, and Extent of Review
291 k 1970 Particular Matters
291 k 1970 (12) Construction and Operation of Patents
291 k 1970 (13) In general

To the extent the district court, in construing patent claims, makes underlying findings of fact based on extrinsic evidence, the Court of Appeals reviews such findings of fact for clear error.

6 Cases that cite this headnote

[3] **Patents** → Business methods; Internet applications

291 Patents
291V Construction and Operation of Patents
291V(C) Particular Fields of Invention
291k1391 Computers and Software
291k1395 Business methods; Internet applications

Claims in patent for system and method of distributed learning requiring “graphical display” representative of classroom did not require pictorial map that identified participants’ location, even though specification disclosed examples and embodiments where virtual classroom was depicted as “map” or “seating chart,” where patent defined classroom as “an at least partially virtual space in which participants can interact,” specification did not limit graphical display to those examples and embodiments, and embodiments and examples in specification of classroom metaphors relating to “maps” were consistently described in terms of preference.

16 Cases that cite this headnote

[4] **Patents** → Claims as measure of patentee’s rights
Patents → Specification as limiting or enlarging claims in general

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1314 Claims and Limitations; Language of Patent
291k1319 Claims as measure of patentee’s rights
291 Patents
291V Construction and Operation of Patents

291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1329 Specification as limiting or enlarging claims in general

It is the claims, not the written description, which define the scope of the patent right.

3 Cases that cite this headnote

[5] **Patents** → Specification as limiting or enlarging claims in general

291 Patents
291V Construction and Operation of Patents
291V(A) In General
291k1327 Specifications and Drawings; Written Description
291k1329 Specification as limiting or enlarging claims in general

Patent claims must not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.

4 Cases that cite this headnote

[6] **Patents** → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291V(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

In enacting provision governing construction of means-plus-function claims, Congress struck a balance in allowing patentees to express a claim limitation by reciting a function to be performed rather than by reciting structure for performing that function, while placing specific constraints on how such a limitation is to be construed, namely, by restricting the scope of coverage to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof. 35 U.S.C.A. §

112.

291k910Assertion of Claims
291k915Functions, means, and results of invention

104 Cases that cite this headnote

Presumption that the means-plus-function statute does not apply to a patent claim that does not use the word “means” is not strong, and a showing that the limitation essentially is devoid of anything that can be construed as structure is not required to overcome the presumption; overruling *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286. 35 U.S.C.A. § 112.

[7] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General
291k910Assertion of Claims
291k915Functions, means, and results of invention

Merely because a named element of a patent claim is followed by the word “means” does not automatically make that element a “means-plus-function” element under the statute governing construction of means-plus-function claims. 35 U.S.C.A. § 112.

12 Cases that cite this headnote

18 Cases that cite this headnote

[10] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General
291k910Assertion of Claims
291k915Functions, means, and results of invention

[8] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General
291k910Assertion of Claims
291k915Functions, means, and results of invention

Merely because an element of a patent claim does not include the word “means” does not automatically prevent that element from being construed as a means-plus-function element. 35 U.S.C.A. § 112.

When a patent claim term lacks the word “means,” presumption that the means-plus-function statute does not apply can be overcome and the statute will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. 35 U.S.C.A. § 112.

305 Cases that cite this headnote

8 Cases that cite this headnote

[11] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General
291k910Assertion of Claims
291k915Functions, means, and results of invention

[9] **Patents** → Functions, means, and results of invention

291Patents
291IVPatent Applications and Proceedings
291IV(A)In General

Term “distributed learning control module,” as

used in patent for system and method of distributed learning, was means-plus-function claim term, despite absence of the word “means” in the claim; the claim replaced the word “means” with the word “module,” a generic description for software or hardware that performs a specified function, and set forth the same black box recitation of structure for providing the same specified function as if the term “means” had been used. 35 U.S.C.A. § 112.

96 Cases that cite this headnote

[12] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

Generic terms such as “mechanism,” “element,” “device,” and other nonce words that reflect nothing more than verbal constructs may be used in a patent claim in a manner that is tantamount to using the word “means” because they typically do not connote sufficiently definite structure and therefore may invoke the means-plus-function statute. 35 U.S.C.A. § 112.

59 Cases that cite this headnote

[13] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

In determining whether presumption that the means-plus-function statute does not apply to a patent claim that does not use the word “means” has been rebutted, the fact that one of skill in the art could program a computer to perform the

recited functions cannot create structure where none otherwise is disclosed. 35 U.S.C.A. § 112.

26 Cases that cite this headnote

[14] Patents → Particular products or processes

291 Patents
291III Patentability and Validity
291II(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k822 Particular products or processes

Specification of patent for system and method of distributed learning did not disclose sufficient structure corresponding to the “distributed learning control module” referred to in means-plus-function claims, making those claims invalid for indefiniteness; written description made it clear that the distributed learning control module had to be implemented in a special purpose computer, but the specification did not set forth an algorithm for performing the claimed functions. 35 U.S.C.A. § 112.

7 Cases that cite this headnote

[15] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

Construing a means-plus-function claim term is a two-step process: the court must first identify the claimed function; then, the court must determine what structure, if any, disclosed in the specification corresponds to the claimed function. 35 U.S.C.A. § 112.

131 Cases that cite this headnote

[16] Patents → Ambiguity, Uncertainty, or Indefiniteness
Patents → Functions, means, and results of invention

291 Patents
291III Patentability and Validity
291II(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general
291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

Where there are multiple claimed functions in a means-plus-function patent claim, the patentee must disclose adequate corresponding structure to perform all of the claimed functions; if the patentee fails to disclose adequate corresponding structure, the claim is indefinite. 35 U.S.C.A. § 112.

[79 Cases that cite this headnote](#)

[17] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

Structure disclosed in the patent specification qualifies as “corresponding structure” for a means-plus-function claim if the intrinsic evidence clearly links or associates that structure to the function recited in the claim; even if the specification discloses corresponding structure, the disclosure must be of “adequate” corresponding structure to achieve the claimed function. 35 U.S.C.A. § 112.

[233 Cases that cite this headnote](#)

[18] Patents → Ambiguity, Uncertainty, or

Indefiniteness

291 Patents
291III Patentability and Validity
291II(F) Other Challenges to Validity
291k815 Ambiguity, Uncertainty, or Indefiniteness
291k816 In general

Under the means-plus-function statute, if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim, a means-plus-function clause is indefinite. 35 U.S.C.A. § 112.

[210 Cases that cite this headnote](#)

[19] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

In cases involving a claim limitation subject to the means-plus-function statute that must be implemented in a special purpose computer, the structure disclosed in the specification must be more than simply a general purpose computer or microprocessor; the specification must disclose an algorithm for performing the claimed function, which may be expressed as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure. 35 U.S.C.A. § 112.

[7 Cases that cite this headnote](#)

[20] Patents → Functions, means, and results of invention

291 Patents
291IV Patent Applications and Proceedings
291IV(A) In General
291k910 Assertion of Claims
291k915 Functions, means, and results of invention

The testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the patent specification corresponding to a means-plus-function claim. 35 U.S.C.A. § 112.

16 Cases that cite this headnote

[21] **Patents** — In general; utility

291 Patents
291X Patents Enumerated
291k2091 In general; utility

US Patent 6,155,840. Invalid in Part.

Attorneys and Law Firms

*1342 **Brett Johnston Williamson**, O'Melveny & Myers LLP, Newport Beach, CA, argued for plaintiff-appellant. Also represented by **Tim D. Byron**; **William C. Norvell, Jr.**, **Scott Dion Marrs**, **Brian T. Bagley**, Beirne Maynard & Parsons, LLP, Houston, TX.

Kurt Louis Glitzenstein, Fish & Richardson P.C., Boston, MA, argued for all defendants-appellees. Citrix Online, LLC, Citrix Systems, Inc., Microsoft Corporation, Adobe Systems, Inc., also represented by **Frank Scherkenbach**; **Indranil Mukerji**, Washington, DC; **Jonathan J. Lamberson**, Redwood City, CA. Defendant-appellee Microsoft Corporation also represented by **Isabella Fu**, Microsoft Corporation, Redmond, WA.

Douglas M. Kubehl, Baker Botts LLP, Dallas, TX, for defendants-appellees Webex Communications, Inc., Cisco Webex, LLC, Cisco Systems, Inc. Also represented by **Samara Kline**, **Brian Douglas Johnston**.

Mark J. Abate, Goodwin Procter LLP, New York, N.Y., for defendant-appellee International Business Machines Corporation. Also represented by *1343 **Calvin E. Wingfield, Jr.**; **William F. Sheehan**, Washington, DC. Before **MOORE**, **LINN**, and **REYNA**, Circuit Judges.¹

Opinion

Opinion for the court filed by Circuit Judge **LINN**.

Opinion concurring in part, dissenting in part, and with additional views filed by Circuit Judge **REYNA**.

PROST, Chief Judge, **LOURIE**, **LINN**, **DYK**, **MOORE**, **O'MALLEY**, **REYNA**, **WALLACH**, **TARANTO**, **CHEN**, and **HUGHES**, Circuit Judges, have joined Part II.C.1. of this opinion.

Opinion dissenting from Part II.C.1. filed by Circuit Judge **NEWMAN**.

LINN, Circuit Judge.

Richard A. Williamson (“Williamson”), as trustee for the At Home Corporation Bondholders’ Liquidating Trust, owns U.S. Patent No. 6,155,840 (the “’840 patent”) and appeals from the stipulated final judgment in favor of defendants Citrix Online, LLC; Citrix Systems, Inc.; Microsoft Corporation; Adobe Systems, Inc.; Webex Communications, Inc.; Cisco Webex, LLC; Cisco Systems, Inc.; and International Business Machines Corporation (collectively, “Appellees”). Because the district court erroneously construed the limitations “graphical display representative of a classroom” and “first graphical display comprising ... a classroom region,” we vacate the judgment of non-infringement of claims 1–7 and 17–24 of the ’840 patent. Because the district court correctly construed the limitation “distributed learning control module,” we affirm the judgment of invalidity of claims 8–12 of the ’840 patent under 35 U.S.C. § 112², para. 2. Accordingly, we remand.

I. Background

A. The ’840 Patent

The ’840 patent describes methods and systems for “distributed learning” that utilize industry standard computer hardware and software linked by a network to provide a classroom or auditorium-like metaphor—i.e., a “virtual classroom” environment. The objective is to connect one or more presenters with geographically remote audience members. ’840 patent col.2 ll.10–14. The disclosed inventions purport to provide “the benefits of classroom interaction without the detrimental effects of complicated hardware or software, or the costs and

inconvenience of convening in a separate place.” *Id.* at col.2 ll.4–7.

There are three main components of the “distributed learning” system set forth in the ‘840 patent: (1) a presenter computer, (2) audience member computers, and (3) a distributed learning server. The distributed learning server implements a “virtual classroom” over a computer network, such as the Internet, to facilitate communication and interaction among the presenter and audience members. The presenter computer is used by the presenter to communicate with the audience members and control information that appears on the audience member’s computer screen. *Id.* at col.4 l.66–col.5 l.2. An audience member’s computer is used to display the presentation and can be used to communicate *1344 with the presenter and other audience members. *Id.* at col.5 ll.11–14.

The ‘840 patent includes the following three independent claims, with disputed terms highlighted:

1. A method of conducting distributed learning among a plurality of computer systems coupled to a network, the method comprising the steps of:

providing instructions to a first computer system coupled to the network for:

creating a *graphical display representative of a classroom*;

creating a graphical display illustrating controls for selecting first and second data streams;

creating a first window for displaying the first selected data stream; and

creating a second window for displaying the second selected data stream, wherein

the first and second windows are displayed simultaneously; and

providing instructions to a second computer system coupled to the network for:

creating a *graphical display representative of the classroom*;

creating a third window for displaying the first selected data stream; and

creating a fourth window for displaying the second selected data stream, wherein

the third and fourth windows are displayed

simultaneously.

8. A system for conducting distributed learning among a plurality of computer systems coupled to a network, the system comprising:

a presenter computer system of the plurality of computer systems coupled to the network and comprising:

a content selection control for defining at least one remote streaming data source and for selecting one of the remote streaming data sources for viewing; and

a presenter streaming data viewer for displaying data produced by the selected remote streaming data source;

an audience member computer system of the plurality of computer systems and coupled to the presenter computer system via the network, the audience member computer system comprising:

an audience member streaming data viewer for displaying the data produced by the selected remote streaming data source; and

a distributed learning server remote from the presenter and audience member computer systems of the plurality of computer systems and coupled to the presenter computer system and the audience member computer system via the network and comprising:

a streaming data module for providing the streaming data from the remote streaming data source selected with the content selection control to the presenter and audience member computer systems; and

a *distributed learning control module* for receiving communications a *distributed learning control module* for receiving communications transmitted between the presenter and the audience member computer systems and for relaying the communications to an intended receiving computer system and for coordinating the operation of the streaming data module.

17. A distributed learning server for controlling a presenter computer system and an audience member computer system coupled to the distributed learning server via a network, the distributed learning server comprising:

a module for providing a first graphical display on the presenter computer *1345 system, the *first graphical*

display comprising:

a first presenter content selection control for selecting a first source of streaming content representative of graphical information;

a first presenter content display region for displaying the graphical information represented by the streaming content from the first selected source;

a second presenter content selection control for selecting a second source of streaming content representative of graphical information; and

a second presenter content display region for displaying the graphical information represented by the streaming content from the second selected source, wherein the first and second presenter content display regions are adapted to display simultaneously; and

a classroom region for representing the audience member computer system coupled to the distributed learning server; and

a module for providing a second graphical display on the audience member computer system, the second graphical display comprising:

a first audience member content display region for displaying the graphical information represented by the streaming content from the first source selected by the content selection control; and

a second audience member content display region for displaying the graphical information represented by the streaming content from the second source selected by the content selection control, wherein the first and second audience member content display regions are adapted to display simultaneously.

Id. at col.10 ll.28–52, col.11 ll.26–62, col.12 ll.29–65.

B. Procedural History

Williamson accused Appellees of infringing the '840 patent based on their alleged manufacture, sale, offer for sale, use, and importation of various systems and methods of online collaboration. On March 22, 2011, Williamson filed suit in the United States District Court for the Central District of California specifically asserting infringement of all 24 claims of the '840 patent. On September 4, 2012, the district court issued a claim construction order, construing, *inter alia*, the following

limitations of independent claims 1 and 17: “graphical display representative of a classroom” and “first graphical display comprising ... a classroom region” (collectively, the “graphical display” limitations). The district court held that these terms require “a pictorial map illustrating an at least partially virtual space in which participants can interact, and that identifies the presenter(s) and the audience member(s) by their locations on the map.”

In its claim construction order, the district court also concluded that the limitation of claim 8, “distributed learning control module,” was a means-plus-function term under 35 U.S.C. § 112, para. 6. The district court then evaluated the specification and concluded that it failed to disclose the necessary algorithms for performing all of the claimed functions. The district court thus held claim 8 and its dependent claims 9–16 invalid as indefinite under § 112, para. 2.

Williamson conceded that under the district court’s claim constructions, none of Appellees’ accused products infringed independent claims 1 and 17 and their respective dependent claims 2–7 and 18–24, and that claims 8–16 were invalid. The parties stipulated to final judgment. Williamson appeals the stipulated entry of judgment, challenging these claim construction *1346 rulings. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II. Discussion

A. Standard of Review

¹¹ ¹² Regarding questions of claim construction, including whether claim language invokes 35 U.S.C. § 112, para. 6, the district court’s determinations based on evidence intrinsic to the patent as well as its ultimate interpretations of the patent claims are legal questions that we review *de novo*. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, — U.S. —, 135 S.Ct. 831, 840–41, — L.Ed.2d — (2015). To the extent the district court, in construing the claims, makes underlying findings of fact based on extrinsic evidence, we review such findings of fact for clear error. *Id.* Because the district court’s claim constructions in this case were based solely on the intrinsic record, the Supreme Court’s recent decision in *Teva* does not require us to review the district court’s claim construction any differently than under the *de novo* standard we have long

applied. *Fenner Invs., Ltd. v. Cellco P'ship*, 778 F.3d 1320, 1322 (Fed.Cir.2015) (“When the district court reviews only evidence intrinsic to the patent ..., the judge’s determination will amount solely to a determination of law, and [we] review that construction *de novo*.” (quoting *Teva*, 135 S.Ct. at 841)) (internal citations removed).

B. The “graphical display” Limitations

¹³¹ Williamson asserts that the district court erred in its construction of the graphical display terms by improperly importing an extraneous “pictorial map” limitation into the claim. Williamson argues that requiring a “map” unduly narrows the claims to the preferred embodiment disclosed in the written description and that there is no support in the intrinsic record for confining the claims to a “pictorial map” that identifies the location of the participants. Williamson alleges that a proper definition must require the audience members to be able to interact with both the presenter and other audience members. He therefore asserts that the proper construction of the graphical display terms is “a viewable illustration of an at least partially virtual space that allows audience members to interact with both the presenter and other audience members.”

Appellees respond that the district court’s construction correctly limited the claims to a “pictorial map” consistent with the teachings of the written description. According to Appellees, this construction does not import a limitation from the preferred embodiment, but simply reflects the functional aspects of a “classroom” in a manner that is consistent with what the patentee invented and disclosed. Moreover, according to Appellees, it is consistent with the only depiction of a classroom shown in the ‘840 patent, which shows a pictorial map as a seating chart that identifies the presenters and audience members by their locations on the map.

¹⁴¹ We agree with Williamson. The district court erred in construing these terms as requiring a “pictorial map.” First, the claim language itself contains no such “pictorial map” limitation. “[I]t is the *claims*, not the written description, which define the scope of the patent right.” *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed.Cir.1998); *see also id.* (“[A] court may not import limitations from the written description into the claims.”). While the specification discloses examples and embodiments where the virtual classroom is depicted as a “map” or “seating chart,” nowhere does the specification limit the graphical display to those examples and

embodiments. This court has repeatedly “cautioned against limiting the claimed invention to preferred embodiments *1347 or specific examples in the specification.” *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1328 (Fed.Cir.2002) (quoting cases) (citations omitted).

Here, there is no suggestion in the intrinsic record that the applicant intended the claims to have the limited scope determined by the district court. To the contrary, the embodiments and examples in the specification of classroom metaphors relating to “maps” are consistently described in terms of preference. For example, the specification states that “[t]he classroom metaphor *preferably* provides a map of the classroom showing the relative relationships among the presenters and audience members.” ‘840 patent col.2 ll.37–39 (emphasis added). In another example, the graphical display of Figure 6 is described as an “exemplary display” on the presenter’s computer. *Id.* at col.7 ll.35–36. That exemplary display includes a window that “*preferably* provides a seating chart showing the audience members and presenters in the classroom or auditorium.” *Id.* at col.9 ll.5–7 (emphasis added).

¹⁵¹ The ‘840 patent defines a classroom as “an at least partially virtual space in which participants can interact.” *Id.* at col.6 ll.5–6. Nothing further is required, and no greater definition is mandated by the language of the claims, the specification, or the prosecution history. As is well settled, the claims must “not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Innova/Pure Water, Inc., v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed.Cir.2004) (internal quotations omitted).

For the foregoing reasons, we conclude that the district court incorrectly construed the graphical display terms to have a “pictorial map” limitation. We therefore vacate the stipulated judgment of non-infringement of claims 1–7 and 17–24. The “graphical display” limitations in claims 1 and 17 are properly construed as “a graphical representation of an at least partially virtual space in which participants can interact.”

C. The “distributed learning control module” Limitation

1. Applicability of 35 U.S.C. § 112, para. 6³

¹⁶¹ Means-plus-function claiming occurs when a claim term is drafted in a manner that invokes 35 U.S.C. § 112, para. 6, which states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

In enacting this provision, Congress struck a balance in allowing patentees to express a claim limitation by reciting a function to be performed rather than by reciting structure for performing that function, while placing specific constraints on how such a limitation is to be construed, namely, by restricting the scope of coverage to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof. See *Northrop Grumman Corp. v. Intel Corp.*, 325 F.3d 1346, 1350 (Fed.Cir.2003).

¹⁷¹ ¹⁸¹ To determine whether § 112, para. 6 applies to a claim limitation, our precedent has long recognized the importance of the presence or absence of the word “means.” In *Personalized Media Communications, LLC v. International Trade Commission*, building upon a line of cases interpreting § 112, para. 6,⁴ we stated that the use of the word “means” in a claim element creates a rebuttable presumption that § 112, para. 6 applies. 161 F.3d 696, 703–04 (Fed.Cir.1998) (citing cases). Applying the converse, we stated that the failure to use the word “means” also creates a rebuttable presumption—this time that § 112, para. 6 does not apply. *Id.* We have not, however, blindly elevated form over substance when evaluating whether a claim limitation invokes § 112, para. 6:

Merely because a named element of a patent claim is followed by the word “means,” however, does not automatically make that element a “means-plus-function” element under 35 U.S.C. § 112, ¶ 6.... The converse is also true; merely because an element does not include the word “means” does not automatically prevent that element from being construed as a means-plus-function element.

Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed.Cir.1996); see also *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1584 (Fed.Cir.1996) (“We do not mean to suggest that section 112(6) is triggered only if the claim uses the word ‘means.’”).

In making the assessment of whether the limitation in question is a means-plus-function term subject to the strictures of § 112, para. 6, our cases have emphasized

that the essential inquiry is not merely the presence or absence of the word “means” but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. *Greenberg*, 91 F.3d at 1583 (“What is important is ... that the term, as the name for structure, has a reasonably well understood meaning in the art.”). When the claim uses the word “means,” our cases have been consistent in looking to the meaning of the language of the limitation in assessing whether the presumption is overcome. We have also traditionally held that when a claim term lacks the word “means,” the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to “recite[] sufficiently definite structure” or else recites “function without reciting sufficient structure for performing that function.” *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed.Cir.2000).

In *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed.Cir.2004), we applied for the first time a different standard to the presumption flowing from the absence of the word “means” and held that “the presumption flowing from the absence of the term ‘means’ is a *strong one that is not readily overcome*” (emphasis added), citing as examples, *Al-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 1318–19 (Fed.Cir.1999) and *Personalized Media Communications*, 161 F.3d at 703–05. A few years later, we reiterated *Lighting World*’s characterization of the presumption as a “strong one that is not readily overcome” *1349 in *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1358 (Fed.Cir.2011). In *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1374 (Fed.Cir.2012), decided just a year after *Inventio*, we raised the bar even further, declaring that “[w]hen the claim drafter has not signaled his intent to invoke § 112, ¶ 6 by using the term ‘means,’ we are unwilling to apply that provision *without a showing that the limitation essentially is devoid of anything that can be construed as structure*” (emphasis added), citing *Masco Corp. v. United States*, 303 F.3d 1316, 1327 (Fed.Cir.2002), a case involving the different term “step for” and the unusual circumstances in which § 112, para. 6 relates to the functional language of a method claim. Recently, in *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1297 (Fed.Cir.2014), we yet again observed that this presumption is “‘strong’ and ‘not readily overcome’” and noted that, as such, we have “‘seldom’ held that a limitation without recitation of ‘means’ is a means-plus-function limitation,” citing *Lighting World*, 382 F.3d at 1358, 1362, *Inventio*, 649 F.3d at 1356, and *Flo Healthcare*, 697 F.3d at 1374. Our opinions in *Lighting World*, *Inventio*, *Flo Healthcare* and *Apple* have

thus established a heightened bar to overcoming the presumption that a limitation expressed in functional language without using the word “means” is not subject to § 112, para. 6.

¹⁰¹ Our consideration of this case has led us to conclude that such a heightened burden is unjustified and that we should abandon characterizing as “strong” the presumption that a limitation lacking the word “means” is not subject to § 112, para. 6. That characterization is unwarranted, is uncertain in meaning and application, and has the inappropriate practical effect of placing a thumb on what should otherwise be a balanced analytical scale. It has shifted the balance struck by Congress in passing § 112, para. 6 and has resulted in a proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute. Henceforth, we will apply the presumption as we have done prior to *Lighting World*, without requiring any heightened evidentiary showing and expressly overrule the characterization of that presumption as “strong.” We also overrule the strict requirement of “a showing that the limitation essentially is devoid of anything that can be construed as structure.”

¹⁰¹ The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. *Greenberg*, 91 F.3d at 1583. When a claim term lacks the word “means,” the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to “recite sufficiently definite structure” or else recites “function without reciting sufficient structure for performing that function.” *Watts*, 232 F.3d at 880. The converse presumption remains unaffected: “use of the word ‘means’ creates a presumption that § 112, ¶ 6 applies.” *Personalized Media*, 161 F.3d at 703.

2. Functional Nature of the Limitation

¹¹¹ On appeal, Williamson argues that the district court erred in construing the term “distributed learning control module” as being governed by 35 U.S.C. § 112, para. 6. Williamson contends that the district court failed to give appropriate weight to the “strong” presumption against means-plus-function claiming that attaches to claim terms that do not recite the word “means.” Williamson also argues that the district court wrongly focused its analysis on the word “module” instead of the full term, ignored the detailed support provided in the written description, *1350 and misapplied our law by failing to view the term

from the perspective of one of ordinary skill in the art.

Appellees respond that the district court properly construed “distributed learning control module” as a means-plus-function claim term despite the absence of the word “means.” Appellees assert that the presumption against means-plus-function claiming was rebutted because “distributed learning control module” does not have a well understood structural meaning in the computer technology field. Appellees note that the “distributed learning control module” limitation is drafted in the same format as a traditional means-plus-function limitation, and merely replaces the term “means” with “nonce” word “module,” thereby connoting a generic “black box” for performing the recited computer-implemented functions. In Appellees’ view, since the term should be treated as a means-plus-function claim term and there is no algorithmic structure for implementing the claimed functions in the written description, the finding of indefiniteness should be affirmed.

We begin with the observation that the claim limitation in question is not merely the introductory phrase “distributed learning control module,” but the entire passage “distributed learning control module for receiving communications transmitted between the presenter and the audience member computer systems and for relaying the communications to an intended receiving computer system and for coordinating the operation of the streaming data module.” This passage, as lengthy as it is, is nonetheless in a format consistent with traditional means-plus-function claim limitations. It replaces the term “means” with the term “module” and recites three functions performed by the “distributed learning control module.”

¹²¹ “Module” is a well-known nonce word that can operate as a substitute for “means” in the context of § 112, para. 6. As the district court found, “ ‘module’ is simply a generic description for software or hardware that performs a specified function.” J.A. 31. Generic terms such as “mechanism,” “element,” “device,” and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word “means” because they “typically do not connote sufficiently definite structure” and therefore may invoke § 112, para. 6. *Mass. Inst. of Tech. & Elecs. for Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed.Cir.2006); see generally M.P.E.P. § 2181.

Here, the word “module” does not provide any indication of structure because it sets forth the same black box

recitation of structure for providing the same specified function as if the term “means” had been used.⁵ Indeed, Williamson himself acknowledges that “the term ‘module,’ standing alone is capable of operating as a *1351 ‘nonce word’ substitute for ‘means.’” Op. Br. at 43.

The prefix “distributed learning control” does not impart structure into the term “module.” These words do not describe a sufficiently definite structure. Although the “distributed learning control module” is described in a certain level of detail in the written description, the written description fails to impart any structural significance to the term. At bottom, we find nothing in the specification or prosecution history that might lead us to construe that expression as the name of a sufficiently definite structure as to take the overall claim limitation out of the ambit of § 112, para. 6. While Williamson is correct that the presence of modifiers can change the meaning of “module,” the presence of these particular terms does not provide any structural significance to the term “module” in this case.

While portions of the claim do describe certain inputs and outputs at a very high level (e.g., communications between the presenter and audience member computer systems), the claim does not describe how the “distributed learning control module” interacts with other components in the distributed learning control server in a way that might inform the structural character of the limitation-in-question or otherwise impart structure to the “distributed learning control module” as recited in the claim.

^[13] Williamson also points to the declaration of Dr. Shukri Souri to show that one of ordinary skill in the art would understand the term “distributed learning control module” to connote structure. The district court did not discuss Dr. Souri’s testimony in its claim construction ruling. We have considered it but do not find it persuasive. Dr. Souri’s declaration, like the claim language and portions of the written description Williamson identifies, fails to describe how the distributed learning control module, by its interaction with the other components in the distributed learning control server, is understood as the name for structure. Dr. Souri also testified that, “as one of ordinary skill in the art, reading the specification, I would know exactly how to program” a computer to perform the recited functions and further testified that structure “could be in software or it could be in hardware.” J.A. 1391 (256:12–258:16). But the fact that one of skill in the art could program a computer to perform the recited functions cannot create structure where none otherwise is disclosed. See *Function Media, L.L.C. v. Google, Inc.*,

708 F.3d 1310, 1319 (Fed.Cir.2013).

For the foregoing reasons, we conclude that the “distributed learning control module” limitation fails to recite sufficiently definite structure and that the presumption against means-plus-function claiming is rebutted. We therefore agree with the district court that this limitation is subject to the provisions of 35 U.S.C. § 112, para. 6.

3. Disclosure of Corresponding Structure

^[14] Having found that the “distributed learning control module” is subject to application of § 112, para. 6, we next determine whether the specification discloses sufficient structure that corresponds to the claimed function. We conclude that it does not.

^[15] ^[16] Construing a means-plus-function claim term is a two-step process. The court must first identify the claimed function. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed.Cir.2012). Then, the court must determine what structure, if any, disclosed in the specification corresponds to the claimed function. Where there are multiple claimed functions, as we have here, the patentee must disclose adequate corresponding structure to perform *1352 all of the claimed functions. *Id.* at 1318–19. If the patentee fails to disclose adequate corresponding structure, the claim is indefinite. *Id.* at 1311–12.

The district court identified three claimed functions associated with the “distributed learning control module” term: (1) receiving communications transmitted between the presenter and the audience member computer systems; (2) relaying the communications to an intended receiving computer system; and (3) coordinating the operation of the streaming data module. The district court then found that the specification fails to disclose structure corresponding to the “coordinating” function. On appeal, it is undisputed that the claimed “coordinating” function is associated with the “distributed learning control module.” Thus, we must ascertain whether adequate structure corresponding to this function is disclosed in the specification. *Id.* at 1311.

^[17] ^[18] Structure disclosed in the specification qualifies as “corresponding structure” if the intrinsic evidence clearly links or associates that structure to the function recited in the claim. *Id.* (citing *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed.Cir.1997)). Even if the specification discloses corresponding structure, the

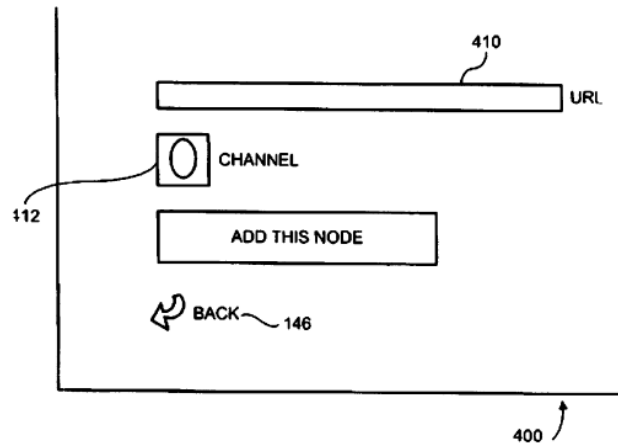
disclosure must be of “adequate” corresponding structure to achieve the claimed function. *Id.* at 1311–12 (citing *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed.Cir.1994) (en banc)). Under 35 U.S.C. § 112, paras. 2 and 6, therefore, if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim, a means-plus-function clause is indefinite. *Id.* at 1312 (citing *AllVoice Computing PLC v. Nuance Commc’ns, Inc.*, 504 F.3d 1236, 1241 (Fed.Cir.2007)).

[19] The district court was correct that the specification of the ‘840 patent fails to disclose corresponding structure. The written description of the ‘840 patent makes clear that the distributed learning control module cannot be implemented in a general purpose computer, but instead must be implemented in a special purpose computer—a general purpose computer programmed to perform particular functions pursuant to instructions from program software. A special purpose computer is required because the distributed learning control module has specialized functions as outlined in the written description. *See, e.g.*, ‘840 patent col.5 ll.48–64. In cases such as this, involving a claim limitation that is subject to § 112, para. 6 that must be implemented in a special purpose computer, this court has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor. *E.g.*, *Aristocrat Techs. Austral. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed.Cir.2008) (citing *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339 (Fed.Cir.1999)). We require that the specification disclose an algorithm for performing the claimed function. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed.Cir.2008). The algorithm may be expressed as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure. *Noah*, 675 F.3d at 1312 (citing *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed.Cir.2008)).

Williamson points to certain disclosures in the specification that, it claims, meet the § 112, para. 6 requirements. Williamson argues that the “distributed learning control module” controls communications among the various computer systems and that the “coordinating” function provides a presenter with streaming media selection functionality. These disclosures, however, are merely functions of the “distributed learning control module.” The specification *1353 does not set forth an algorithm for performing the claimed functions.

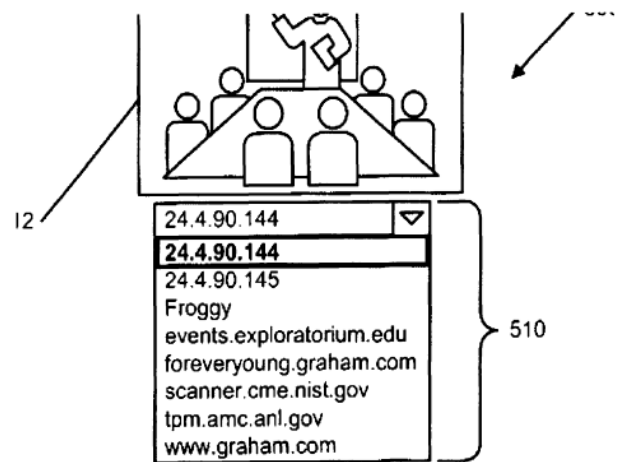
Williamson argues that figures 4 and 5 disclose the required algorithm. This is not the case. Figure 4 is a representative display from the presenter computer system under the direction of the “distributed learning control

module.” ‘840 patent col.7 ll.1–3.



Id. figure 4. This display includes an address or uniform resource locator or URL field, a channel field, an “add this node” button, and a “back” link. *Id.* col.7 ll.5–7, 13–15, 18–19. This is not a disclosure of an algorithm corresponding to the claimed “coordinating” function; it is a description of a presenter display interface.

Figure 5 similarly fails to disclose an algorithm, as it is another representative display on the presenter computer system. *Id.* col.7 ll. 20–24. This display allows the presenter to preview data before presenting it to the audience. *Id.* col.7 ll.32–34.



*1354 *Id.* figure 5. This figure contains a box listing the sources of data and a media window that displays the current feed received from the source of data selected in the list box. *Id.* col.7 ll.24–28. Again, this figure is a description of a presenter display interface; it is not a disclosure of an algorithm corresponding to the claimed functions. Williamson has failed to point to an adequate

disclosure of corresponding structure in the specification. [20] Williamson points to the declaration of Dr. Souri to show that the '840 patent discloses structure. The testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification. *Noah*, 675 F.3d at 1312 (quoting *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1302 (Fed.Cir.2005)). The prohibition against using expert testimony to create structure where none otherwise exists is a direct consequence of the requirement that the specification adequately disclose corresponding structure. *Id.* (quoting *AllVoice Computing*, 504 F.3d at 1240). Thus, the testimony of Dr. Souri cannot create structure where none otherwise exists.

Because the '840 patent fails to disclose any structure corresponding to the “coordinating” function of the “distributed learning control module,” we affirm the judgment that claims 8–16 are invalid for indefiniteness under 35 U.S.C. § 112, para. 2.

Conclusion

The district court erred in construing the “graphical display representative of a classroom” terms in claims 1–7 and 17–24. The district court did not err in construing the term “distributed learning control module” in claims 8–16 of the '840 patent as a means-plus-function claim term lacking corresponding structure. We therefore vacate the final judgment of non-infringement with respect to claims 1–7 and 17–24 and affirm the final judgment of invalidity of claims 8–16. We remand for further proceedings consistent with this opinion.

***1355 AFFIRMED–IN–PART,
VACATED–IN–PART, AND REMANDED**

Costs

Each party shall bear its own costs for this appeal.

REYNA, Circuit Judge, concurring-in-part, dissenting-in-part, and additional views.

This is the second time around for this case. In the first, *Williamson I*, I dissented from the majority conclusion that the “distributed learning control module” term of

claim 8 of the '840 patent recites sufficient structure to keep the claim limitation “distributed learning control module” outside of the purview of 35 U.S.C. § 112, paragraph 6.¹

In this second time around, *Williamson II*, the majority reverses itself to conclude that the “distributed learning control module” term does not recite sufficient structure, is governed by 35 U.S.C. § 112, paragraph 6, and is indefinite under paragraph 2. Because this conclusion is the correct result, I concur. To explain my concurrence, I rely on the reasons I laid out in my dissent in *Williamson I*.

The majority, however, continues to ignore critical evidence showing that an image of a visually depicted virtual classroom is required by claim 8 of the '840 patent. I dissent from that portion of this opinion.

In addition, the majority embraces this case as an opportune vehicle to overrule as improper certain adjectives used in prior opinions in describing the § 112, paragraph 6 presumption. See e.g., *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1360 (Fed.Cir.2011) (describing a “strong” presumption in favor of § 112, paragraph 6 application where a claim recites “means”). I cannot say that I disagree with those statements, but I question whether those statements sidestep underlying fundamental issues involving the development of functional claiming law since 1952 when 35 U.S.C. § 112, paragraph 6 was passed.

For these and the reasons set forth below, I respectfully *concur-in-part, dissent in part, and provide certain comments concerning means-plus-function claiming.*

I. The “Graphical Display” Limitations.

The majority reverses the district court’s conclusion that the “graphical display representative of a classroom” terms require a pictorial map and construes the terms as “a graphical representation of an at least partially virtual space in which participants can interact.” While the majority is correct that the claims of the '840 patent do not require a pictorial map, the majority’s construction ignores a critical limitation. As reviewed below, the specification and prosecution history make clear that the “graphical display representative of a classroom” terms are properly construed as requiring a visually depicted

virtual classroom.

During prosecution, the applicant explained that the invention is distinct from the prior art because the patent requires a “visual virtual classroom” displayed on both a first and second computer system:

Additionally, [the prior art] does not disclose the claimed feature of “creating a graphical display representative of the classroom” on a second computer system coupled to the network. The present invention allows both a first computer system (for example, the presenter computer system) and a second computer system (for example, an audience member) to view a graphical display of the classroom. This claimed feature of the present invention allows the audience *1356 members to interact *in a visual virtual classroom environment* with both the presenter and other audience members.

By contrast, [the prior art] merely discloses “[as] the students log in, their seating locations in the classroom are shown by a highlighted icon in the classroom map on the teacher’s screen.” ... [The prior art] does not teach or suggest displaying a graphical display representative of a classroom on a student’s screen.

J.A. 1267–68 (original emphasis removed and emphases added). These statements in conjunction with the patent’s claim terms confirm the significance of displaying visually depicted virtual classroom.

The “classroom metaphor” is used extensively in characterizing the operation, and touting the benefits, of the inventions embodied in the ‘840 patent. The Abstract teaches that “[t]he classroom environment module provides a classroom metaphor having a podium and rows of seats to the presenter and audience computer systems.” ‘840 patent Abstract. The Summary of the Invention states that the drawbacks of the prior art are overcome “by a distributed learning system that uses industry-standard computer hardware and software linked by a network like the Internet to provide a classroom- or auditorium-like metaphor to at least one presenter and at least one audience member.” *Id.* col. 2 ll. 10–14. The patent further teaches that a “feedback region” on the presenter’s computer “preferably displays a graphical representation of the classroom” and the “classroom environment module” is used to provide “a classroom- or auditorium-like metaphor to the presenter and audience members.” *Id.* col. 3 ll. 11–13, col. 5 l.67–col. 6 l.1.

The repeated mention of the classroom metaphor within the context of the invention and the importance of a visually depicted virtual classroom in the prosecution history indicate that the “graphical display representative

of a classroom” terms require a visually depicted virtual classroom. The construction derived by the majority reads out this important limitation that distinguishes the invention from the prior art. See *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1369 (Fed.Cir.2005) (holding that it was error for the district court to read out a limitation clearly required by the claim language and specification). It is error to read a claim too broadly, as it is to read a claim too narrowly. See, e.g., *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed.Cir.2005). In reading out this important limitation on the “graphical display representative of a classroom” terms, the majority sidesteps our well established rules of claim construction, causing them to reach an erroneous result.

II. Functional Claiming

The majority switches course from its prior decision, *Williamson I*, and now affirms the district court’s conclusion that the term “distributed learning control module” is governed by § 112 para. 6 and is indefinite under § 112 para. 2 because the specification of the ‘840 patent fails to disclose corresponding structure. The majority goes on to explicitly “overrule the characterization of th[e] presumption [that § 112 para. 6 does not apply when the term “means” is not used] as ‘strong.’ ” Maj. Op. at 1349–50. While I agree with that conclusion, we stop short of addressing other equally fundamental concerns about functional claiming.

Our use of § 112, para. 6 presumptions relies on a rigid framework, where a flexible one is arguably more apt. A “presumption” is a procedural tool that shifts the burden of proof on a substantive issue: if a basic fact is established, a court accepts a conclusion on the issue unless the *1357 presumption is rebutted with evidence that meets the presumption’s associated standard of proof. 1–301 Weinstein’s Federal Evidence § 301.02 (2015).² Our § 112 para. 6 presumptions come from the notion that, all else being equal, it is more likely that a party is covered by a statute when it uses the words of the statute. The use of formal presumptions, the argument goes, takes this concept to the extreme, supplying one substantive test for a claim that recites “means” and another for a claim that recites other non-structural terms like “module.” The statute admits no such variation, supplying only one test: is the element “expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” What

arguably changes is the *weight* we attach to different recitations in meeting this test: “means” weighs heavily, non-structural terms like “module” weigh a little less, and, at the other end of the spectrum, purely structural terms weigh heavily in the opposite direction.

A related concern is, assuming that a presumption is the right tool to analyze the statute, should a presumption arise based on the word “means.” Almost twenty years ago, this court adopted a presumption that a claim term that recites “means” invokes § 112, para. 6. *York Products, Inc. v. Central Tractor Farm & Family Center*, 99 F.3d 1568 (Fed.Cir.1996); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580 (Fed.Cir.1996). Appellees’ petition for rehearing en banc argues that § 112 para. 6 provides no basis for adopting a presumption that a claim term is governed by this statute when the term “means” is used. Appellees argue that “[w]hat started out as a straightforward issue of substance ... has morphed into an issue of form.” Appellee’s Petition for Rehearing En Banc at 6. Appellees argue that “the text of [§ 112 para. 6], the Supreme Court authority leading to it, and its legislative history universally confirm that [the statute] applies to all claims that do not recite sufficient structure for performing the recited function—regardless of whether the word ‘means’ is used.” *Id.* at 11. Moreover, the fact that the statute uses both terms—“means” and “step”—would suggest that any presumption should apply to the use of either word. Yet, it is arguably not clear to what extent this court attaches a presumption to the word “step.”

Finally, it is generally accepted that § 112, para. 6 was passed in response to the Supreme Court’s decision in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 67 S.Ct. 6, 91 L.Ed. 3 (1946). See *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 27, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997) (collecting cases); *Technitrol, Inc. v. Control Data Corp.*, 550 F.2d 992, 998 n. 5 (4th Cir.1977). In *Halliburton*, the Supreme Court made the following observations in holding certain claims that recite “means” language invalid:

The language of the claim ... describes this ... element in the ‘new’ combination in terms of what it will do rather than in terms of its own physical characteristics *1358 or its arrangement in the new combination apparatus. We have held that a claim with such a description of a product is invalid....

Id. at 8, 67 S.Ct. 6.

Arguably, this rationale applies to functional claiming generally, not just to claims that recite “means.” Indeed, the *Halliburton* Court relied on precedent invalidating functional claims that did not recite the term “means.” *Id.*

at 9, 67 S.Ct. 6 (citing *Holland Furniture Co. v. Perkins Glue Co.*, 277 U.S. 245, 256–57, 48 S.Ct. 474, 72 L.Ed. 868 (1928).) The continued viability of this rationale, and its impact on how this Court applies § 112, para. 6 merits attention.

In sum, my view is that perhaps we need to revisit our judicially-created § 112, para. 6 presumptions.

NEWMAN, Circuit Judge, dissenting.

I respectfully dissent from the en banc ruling that is inserted into this panel opinion at Section II.C.1. The court en banc changes the law and practice of 35 U.S.C. § 112 paragraph 6, by eliminating the statutory signal of the word “means.” The purpose of this change, the benefit, is obscure. The result, however, is clear: additional uncertainty of the patent grant, confusion in its interpretation, invitation to litigation, and disincentive to patent-based innovation.

Curiously, the court acknowledges that it “has long recognized the importance of the presence or absence of the word ‘means.’ ” Maj. Op. at 1348. Nonetheless, the court rejects the meaning and usage of “means” to signal means-plus-function claim construction. The court now overrules dozens of cases referring to a “strong presumption” of means-plus-function usage, and goes to the opposite extreme, holding that this court will create such usage from “[g]eneric terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words.” Maj. Op. at 1350. In the case before us, the so-called “nonce” word is “module.” Thus the court erases the statutory text, and holds that no one will know whether a patentee intended means-plus-function claiming until this court tells us.

I dissent from the majority’s reasoning and the majority’s holding that “distributed learning control module” falls under paragraph 6. I express no opinion on the ultimate validity of the claim; the claim must stand or fall on its merit, but does not fall under paragraph 6.

I urge the court to recognize that it is the applicant’s choice during prosecution whether or not to invoke paragraph 6, and the court’s job is to hold the patentee to his or her choice. This approach is clear, easy to administer by the USPTO in examination and the courts in litigation, and does no harm, for patent applicants know how to invoke paragraph 6 if they choose.

The statute is clear

When the statute is clear, judicial interpretation is unnecessary. See *Sebelius v. Cloer*, — U.S. —, 133 S.Ct. 1886, 1896, 185 L.Ed.2d 1003 (2013) (“[R]ules of thumb give way when the words of a statute are unambiguous ...”) (internal quotations omitted); *Arlington Cent. Sch. Dist. Bd. of Educ. v. Murphy*, 548 U.S. 291, 296, 126 S.Ct. 2455, 165 L.Ed.2d 526 (2006) (“When the statutory language is plain, the sole function of the courts—at least where the disposition required by the text is not absurd—is to enforce it according to its terms.”) (quoting *Hartford Underwriters Ins. Co. v. Union Planters Bank, N.A.*, 530 U.S. 1, 6, 120 S.Ct. 1942, 147 L.Ed.2d 1 (2000)); *Hughes Aircraft Co. v. Jacobson*, 525 U.S. 432, 438, 119 S.Ct. 755, 142 L.Ed.2d 881 (1999) (“As in any case of statutory construction, our analysis begins with the language of the statute. And where the statutory language provides a *1359 clear answer, it ends there as well.”) (internal citations and quotations omitted); *Estate of Cowart v. Nicklos Drilling Co.*, 505 U.S. 469, 475, 112 S.Ct. 2589, 120 L.Ed.2d 379 (1992) (“[W]hen a statute speaks with clarity to an issue judicial inquiry into the statute’s meaning, in all but the most extraordinary circumstance, is finished.”).

35 U.S.C. § 112 paragraph 6 authorizes and limits the claiming of a function:

¶ 6 An element in a claim for a combination may be expressed as a **means or step for** performing a specified function without the recital of structure, material, or acts in support thereof, and such claim **shall be construed** to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

(Boldface added. Paragraph 6 was redesignated paragraph “f” in 2012—I retain the earlier designation here, for concordance with precedent.)

The statute is clear. To claim an element by the function performed, the element is “expressed as” a “means for,” as the statute provides. The court’s holding that “distributed learning control module” is “a means-plus-function claim term despite the absence of the word ‘means,’” maj. op. at 1350, is not only unclear—it also violates the statute.

The signal “means for” is clear—and is clearly understood

When the statutory signal “means for” is given, the entire patent-concerned community: the patent attorney, the patent examiner, the competitor, the infringer, the inventor, and the judge, know “the subject matter which the applicant regards as his invention,” 35 U.S.C. § 112 ¶ 2, and know how the means-plus-function term is required to be construed. When an applicant claims a “means for” performing a function, the statute limits the scope of the claim to the structure in the specification and its equivalents. With today’s en banc change of law, as the case *sub judice* illustrates, everyone must guess whether the claimed “module” is claimed as a function or an apparatus or something else, and whether it is to be limited by the “structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6.

Until today, the signal “means for” instructed the claim interpretation. There was no ambiguity about how the claim was to be interpreted. I discern no groundswell for this change in the law of claiming—indeed, the public voice has been silent. I know of no legal or public interest served by introducing this uncertainty into claim construction. I urge the court to restore this claim construction to its clear and effective role.

Legislation by footnote

An unheralded footnote, announcing en banc change of law, without notice to and participation of the interested public, is not the optimum judicial path. There is indeed a need for judicial consistency concerning the construction of means-plus-function claims. The answer is not to strain the statute and reject consistency, but to enforce the statute as it is written.

We should act en banc to correct this departure from statute. If the statute is to be changed, that is not the judicial prerogative. Indeed, it is noteworthy that in eight years of congressional study of proposals for legislative change, culminating in the America Invents Act of 2012, the legislative record shows no proposal to depart from the “strong presumption” embodied in section 112 paragraph 6 and the statutory signal “means for.”

The burden is on the applicant, not the judge

The burden of determining whether paragraph 6 applies to a particular element *1360 is on the applicant, not the court. As the Faber/Landis treatise states: “To be sure you are under [section 112](#), paragraph 6, use the pure ‘means for ...’ Other words lead to ambiguity and the need for the court to decide. Use of clear structure words avoids ambiguity.” Robert C. Faber, Landis on Mechanics of Patent Claim Drafting at 3–201 (5th ed.2008).

The Donner treatise teaches by example:

For example, suppose an invention relates to a new television set. The television set includes a new transistor-based picture tube, as well as other new features. The picture tube can be recited two ways in the claim for the television:

Standard claim element format:

A television, comprising:

A picture tube; ...

Means-plus-function format:

A television comprising:

Picture tube means for displaying a television picture; ...

Irah H. Donner, Patent Prosecution: Practice and Procedure Before the U.S. Patent and Trademark Office at 46–47 (2d ed.1999).

My colleagues protest that the statutory presumption of “means” “has resulted in a proliferation of functional claiming untethered to [§ 112](#), para. 6 and free of the strictures set forth in the statute.” Maj. Op. at 1349. This is an indictment of the court’s fidelity to the statute, not a flaw in the statute itself. The court’s reasoning today that there is no “algorithm” for “module” in the specification, and the word “module” is a “nonce word” for “means,” and thus the claim is written in accordance with paragraph 6, is not easy to fathom.

The enactment in 1952

This paragraph was enacted to overturn several Supreme Court rulings rejecting “functional” claiming. The statute authorizes claiming a function or step in a combination, while safeguarding against the Court’s stated concerns. P.J. Federico’s *Commentary* explains:

The last paragraph of [section 112](#) relating to so-called functional claims is new. It provides that an element of a claim for a combination (and a combination may be not only a combination of mechanical elements, but also a combination of substances in a composition claim, or steps in a process claim) may be expressed as a means or step for performing a specified function, without the recital of structure, material or acts in support thereof.

P.J. Federico, *Commentary on the New Patent Act*, in [35 U.S.C.A. 1, 25 \(West 1954\)](#), reprinted in 75 J. Pat. & Trademark Off. Soc’y 161 (1993).¹

The Commentary made clear that the statute was intended to overrule some Court decisions:

It is unquestionable that some measure of greater liberality in the use of functional expressions in combination claims is authorized than had been permitted by some court decisions and that decisions such as that in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 67 S.Ct. 6, 91 L.Ed. 3 (1946), are modified or rendered obsolete, but the exact limits of the enlargement remain to be determined.

*1361 *Id.* Federico explained that paragraph 6 enlarges the opportunity to claim a function, but limits how that function is supported and construed:

The paragraph ends by stating that such a claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. This relates primarily to the construction of such claims for the purpose of determining when the claim is infringed (note the use of the word “cover”), and would not appear to have much, if any, applicability in determining the patentability of such claims over the prior art, that is, the Patent Office is not authorized to allow a claim which “reads on” the prior art.

Id. at 26.

Thus this paragraph of the 1952 Act overruled the *Halliburton* case, which had been supported by earlier precedent, as the Court discussed. *Halliburton*, 329 U.S. at 10, 67 S.Ct. 6 (citing *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 371, 58 S.Ct. 899, 82 L.Ed. 1402 (1938) for the proposition that claims are indefinite for using “conveniently functional language at the exact point of novelty.”).

This paragraph established that an inventor could claim a function, and the “means for” signal entered the patent lexicon, where it has reposed ever since, as a universally understood signal of a functional claim.

The Examination Guidelines

The PTO Examination Guidelines instruct examiners and practitioners in accordance with law. The 2000 Guidelines dealt with means-plus-function claiming as follows:

The PTO must apply 35 U.S.C. 112 ¶ 6 in appropriate cases, and give claims their broadest reasonable interpretation, in light of and consistent with the written description of the invention in the application. [2] Thus, a claim limitation will be interpreted to invoke 35 U.S.C. 112 ¶ 6 if it meets the following 3-prong analysis:

- (1) The claim limitations must use the phrase “means for” or “step for;”
- (2) the “means for” or “step for” must be modified by functional language; and
- (3) the phrase “means for” or “step for” must not be modified by structure, material or acts for achieving the specified function.

Supplemental Examination Guidelines for Determining the Applicability of 35 U.S.C. 112 ¶ 6, 65 Fed.Reg. 38510, 38514 (June 21, 2000). Endnote 2 cites *In re Donaldson* for “stating that 35 U.S.C. 112 ¶ 6 sets a limit on how broadly the PTO may construe means-plus-function language under the rubric of ‘reasonable interpretation.’” *Id.* at 38515. The Guidelines further explained:

With respect to the first prong of this analysis, a claim element that does not include the phrase “means for” or “step for” will not be considered to invoke 35 U.S.C. 112 ¶ 6. If an applicant wishes to have the claim limitation treated under 35 U.S.C. 112 ¶ 6, applicant must either: (1) Amend the claim to include the phrase “means for” or “step for” in accordance with these interim guidelines; or (2) show that even though the phrase “means for” or “step for” is not used, the claim limitation is written as a function to be performed and does not provide any structure, material, or acts which would preclude application of 35 U.S.C. 112 ¶ 6.

Id. at 38514.

The 2000 Guidelines place the burden for invoking paragraph 6 on the applicant by way of the “means” signal. *Id.* at 38514 (citing Notice, *Means or Step Plus Function Limitation under 35 U.S.C. 112*, ¶ 6, 1162 Official Gazette U.S. Pat. Off. *1362 59 (May 17, 1994)). The Revised Examination Guidelines in 2011 attempted to incorporate this court’s intervening decisions, for the Federal Circuit had begun its retreat from clarity. See [Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications](#), 76 Fed.Reg. 7162 (Feb. 9, 2011).

Examiners are now instructed to scrutinize claims for “a nonce word or verbal construct that is not recognized as the name of a structure.” *Id.* at 7167 (citing *Lighting World*, 382 F.3d at 1360). The examiner is instructed to “determine whether the claim limitation uses a nonstructural term (a term that is simply a substitute for the term “means for”).” *Id.* (citing *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1096 (Fed.Cir.2008)). The examiner must guess whether the term is intended as a means-plus-function term, now that the court holds that the signal “means for” need not be used. Paragraph 6 has morphed from a clear legal instruction into a litigator’s delight.

Federal Circuit precedent, on and off

This court has recognized that the absence of “means for” signals the patentee’s intent not to invoke section 112, para. 6, and that this intent should not be rejected lightly. *E.g.*, *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1297 (Fed.Cir.2014) (“We have repeatedly characterized this presumption as ‘strong’ and ‘not readily overcome’ and, as such, have ‘seldom’ held that a limitation without recitation of ‘means’ is a means-plus-function limitation.”); *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1374 (Fed.Cir.2012) (“Our cases make clear ... that the presumption flowing from the absence of the term ‘means’ is a strong one that is not readily overcome.”) (quoting *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed.Cir.2004)); *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1356 (Fed.Cir.2011) (“Thus, the presumption flowing from the absence of the term “means” is a strong one that is not readily overcome”); *Al-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 1318 (Fed.Cir.1999) (“[W]hen an element of a claim does

not use the term “means,” treatment as a means-plus-function claim element is generally not appropriate.”); *Personalized Media Communications, LLC v. International Trade Commission*, 161 F.3d 696, 704 (Fed.Cir.1998) (“failure to use the word “means” creates a presumption that § 112, ¶ 6 does not apply.”). On this weighty precedent, the court’s en banc rejection of this simple signal is not readily understood.

The *en banc* court still permits use of the “means” signal, although without a “strong presumption” of significance. The result is fresh uncertainty, for the judge can invoke paragraph 6 although the patentee chose otherwise and wrote the specification and claims on a different legal standard.

All claims must meet the requirements of patentability

The court states its concern with overly broad interpretation of software claims. The court is not powerless to require software claims to comply with the statutory requirements of description, enablement, definiteness, unobviousness, etc. If there have been abuses, as the majority states, the remedy is not to eliminate the statute, but to apply the statute.

Today’s ruling is an example. The court holds that the clause “distributed learning control module” is subject to

paragraph 6 because “module” is a “nonce word.” The court then finds no “algorithm” for “module” in the specification, and invalidates the claim for failing to comply with paragraph 6. However, contrary to the apparent belief of the majority, the presence or *1363 absence of the paragraph 6 signal does not affect the requirements of patentability.

All claims must meet the requirements of patentability. Paragraph 6 is a statute of authorization and limitation; it does not annul the other provisions of the statute. The problem with today’s ruling is that the court has rejected the rigor and simplicity of paragraph 6 and the patentee’s intent, replacing it with arbitrary judicial subjectivity.

Conclusion

Paragraph 6 was designed to authorize and provide the rules for claiming a functional element or step. No purpose is served by discarding the statutory signal. The result is further inroad into stability of claim construction. I respectfully dissent.

All Citations

792 F.3d 1339, 115 U.S.P.Q.2d 1105

Footnotes

- 1 The earlier opinion in this case, reported at 770 F.3d 1371 (Fed.Cir.2014), is withdrawn, and this opinion substituted therefore. Part II.C.1. of this opinion has been considered and decided by the court en banc. See Order in this case issued this date.
- 2 35 U.S.C. § 112 was amended and subsections were renamed by the America Invents Act, Pub.L. No. 112–29 (“AIA”), which took effect on September 16, 2012. Because the application resulting in the ‘840 patent was filed before that date, this opinion refers to the pre-AIA version of § 112.
- 3 Because the overruling of prior precedent can only be done by the court *en banc*, see *South Corp. v. United States*, 690 F.2d 1368, 1370 n. 2 (Fed.Cir.1982) (*en banc*), Part II.C.1. of this opinion has been considered by an *en banc* court formed of Prost, Chief Judge, Newman, Lourie, Linn, Dyk, Moore, O’Malley, Reyna, Wallach, Taranto, Chen, and Hughes, *Circuit Judges*.
- 4 See, e.g., *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533 (Fed.Cir.1991); *Greenberg v. Ethicon Endo–Surgery, Inc.*, 91 F.3d 1580 (Fed.Cir.1996); *Cole v. Kimberly–Clark Corp.*, 102 F.3d 524 (Fed.Cir.1997); *Mas–Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206 (Fed.Cir.1998); *Unidynamics Corp. v. Automatic Prods. Int’l, Ltd.*, 157 F.3d 1311 (Fed.Cir.1998).
- 5 We have addressed the use of the word “module” in a means-plus-function dispute in the unpublished decision *Ranpak Corp. v. Storopack, Inc.*, 168 F.3d 1316, No. 98–1009, 1998 WL 513598 (Fed.Cir. July 15, 1998) (unpublished). In *Ranpak*, we were presented with two closely related claim terms, a “settable control means,” which indisputably invoked means-plus-function claiming, and a “settable control module.” *Id.* at *2. In the context of the patent at issue, we found that the word “module” in the term “settable control module” did not connote structure. *Id.* We came to this conclusion because “module” merely sets forth “the

same black box without recitation of structure for providing the same specified function” as did “means.” *Id.* Since there was no difference in the structural implications of the terms, we held that the presumption against means-plus-function claiming was rebutted and the “settable control module” was properly construed as a means-plus-function term.

1 *Williamson v. Citrix Online, LLC*, 770 F.3d 1371, 1380 (Fed.Cir.2014)

2 One familiar presumption is the presumption of patent validity. Under this presumption, a court accepts the conclusion that an issued patent is valid absent clear and convincing evidence negating that presumption, i.e., evidence showing that the patent is invalid. *Microsoft Corp. v. i4i Ltd. P’ship.*, — U.S. —, 131 S.Ct. 2238, 2242, 180 L.Ed.2d 131 (2011); *Commil USA, LLC v. Cisco Systems, Inc.*, —U.S. —, 135 S.Ct. 1920, 1928–29, 191 L.Ed.2d 883 (2015). I note that the majority opinion does not provide an associated standard of proof for the § 112 para. 6 presumptions. Indeed, I remain unconvinced that this court has applied a different standard of proof dependent on how the presumption is labeled or characterized.

1 See Giles S. Rich, *Congressional Intent—or, Who wrote the Patent Act of 1952?*, in *Patent Procurement and Exploitation* 61, 66 (BNA Inc., 1963) (“Mr. Federico received a letter ... saying the [House] committee requested him to undertake the preparation of ‘an overall patent revision bill’ at his earliest convenience....”); see also Louis S. Zarfás, *Notes from the Editor*, *J. Pat. & Trademark Off. Soc’y* 160 (1993) (“Examiner-in-Chief Federico was the primary author of the Patent Act of 1952.”).