

A CRITIQUE OF THE USE OF SECONDARY CONSIDERATIONS IN APPLYING THE SECTION 103 NONOBVIOUSNESS TEST FOR PATENTABILITY

Article I, section 8 of the Constitution grants Congress the power "to promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their respective . . . Discoveries."¹ This grant forms the basis of the modern American patent law system.² Pursuant to this grant, Congress enacted the 1952 Patent Act³ ("the 1952 Act"), which set forth three requirements for patentability.⁴ One of the requirements, contained in section 103 of the 1952 Act, is that for an invention to be patentable, "the subject matter [of the invention] as a whole [must not] 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."⁵ In 1966, the Supreme Court, in *Graham v. John Deere Co.*, held that section 103 requires courts to evaluate nonobviousness based on publicly available information relating to the invention existing at the time the invention was made.⁶ Such information is commonly referred to as the prior art.⁷ The Court stated that the nonobviousness test involves evaluating three considerations based on the prior art: the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art.⁸

Courts have experienced difficulty applying the section 103 nonobviousness test.⁹ One reason for this difficulty is that courts often lack sufficient training in science or engineering to be able to understand the prior art and the claimed invention.¹⁰ Another reason is that courts find it difficult to determine whether the claimed invention would have been obvious at the time it was made without relying on hindsight or reading the inventor's own disclosure into the prior art.¹¹ In response to these problems, courts have resorted to using non-technical objective factors, often called secondary considerations

¹ U.S. CONST. art. I, § 8, cl. 8.

² I W. ROBINSON, TREATISE ON THE LAW OF PATENTS ch. III § 46 (1890).

³ Act of Jul. 19, 1952, ch. 950, 66 Stat. 792.

⁴ The three criteria for patentability are utility, 35 U.S.C. § 101 (1985); novelty, *id.* § 102; and nonobviousness, *id.* § 103.

⁵ *Id.* § 103.

⁶ See I P. ROSENBERG, PATENT LAW FUNDAMENTALS § 7.01 (rev. 2d ed. 1985).

⁷ 383 U.S. 1, 17-18 (1966).

⁸ *Id.*

⁹ See *Reiner v. I. Leon Co.*, 285 F.2d 501, 503-04 (2d Cir. 1960), *cert. denied*, 366 U.S. 929 (1961) (difficult for court to determine whether invention would have been obvious to one skilled in the art when court is totally unfamiliar with the art); *Safety Car Heating & Lighting Co. v. General Elec. Co.*, 155 F.2d 937, 939 (2d Cir. 1946) (courts unfamiliar with field of invention likely to underrate or overrate difficulties in making invention); Note, *Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity*, 112 U. PA. L. REV. 1169, 1170 (1964) [hereinafter Penn. Note].

¹⁰ See *Graham*, 383 U.S. at 36; Penn. Note, *supra* note 9, at 1170.

¹¹ See *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1091-93 (Fed. Cir. 1985) (district court erroneously decided obviousness issue by using inventor's discovery as a guide in interpreting prior art); 2 D. CHISUM, PATENTS § 5.05, at 234 (1985).

or subtests of nonobviousness, as aids in applying section 103.¹² These factors ("secondary considerations") focus on the economic and motivational aspects of nonobviousness, rather than the technological aspects.¹³ They include evidence of commercial success,¹⁴ fulfillment of a long-felt but unsolved need,¹⁵ licensing to potential competitors,¹⁶ copying by an infringer,¹⁷ progress of the patent application through the Patent and Trademark Office,¹⁸ near-simultaneous invention by another researcher in the field,¹⁹ and professional approval by experts in the field.²⁰

Considerable controversy exists regarding the proper role of secondary considerations in the obviousness analysis.²¹ This controversy exists because the Supreme Court explicitly endorsed the use of secondary considerations in *Graham*,²² but failed to clarify their role. Specifically, the Court did not indicate what weight they were to be given relative to the three prior art considerations, or whether all the secondary considerations were to have equal weight.²³ One view which has emerged is that the secondary considerations are relevant only when the outcome of the nonobviousness test is ambiguous based on the three prior art considerations alone.²⁴ The Supreme Court, in cases decided subsequent to *Graham*, appears to have supported this view.²⁵ Another view is that the secondary considerations form the fourth part of the section 103 nonobviousness test and in some cases are to be given greater weight than the three prior art considerations.²⁶

¹² See *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983), *cert. denied*, 105 S. Ct. 172 (1984); *Reiner*, 285 F.2d at 503-04; Penn. Note, *supra* note 9, at 1172.

¹³ See *Graham*, 383 U.S. at 35-36; Penn. Note, *supra* note 9, at 1172.

¹⁴ See *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486, 495-96 (1877); *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1575-76 (Fed. Cir. 1984), *cert. denied*, 105 S. Ct. 2138 (1985). See generally Boyer, *Commercial Success as Evidence of Patentability*, 37 FORDHAM L. REV. 573 (1969).

¹⁵ See *In re Piasecki*, 745 F.2d 1468, 1473-75 (Fed. Cir. 1984); *Safety Car*, 155 F.2d at 939.

¹⁶ See *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 55-56 (1923); *Philip v. Mayer, Rothkopf Indus., Inc.*, 204 U.S.P.Q. 753, 763 (E.D.N.Y. 1979), *aff'd*, 635 F.2d 1056 (2d Cir. 1980).

¹⁷ See *Diamond Rubber Co. v. Consol. Rubber Tire Co.*, 220 U.S. 428, 440-41 (1911); *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567 (Fed. Cir. 1984).

¹⁸ See *United States v. Adams*, 383 U.S. 39, 52 (1966).

¹⁹ See *Graham v. Jeoffroy Mfg. Co.*, 206 F.2d 769, 771 (5th Cir. 1953).

²⁰ See *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 697-98 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

²¹ See CHISUM, *supra* note 11, at 237-38 and cases cited therein.

²² *Graham*, 383 U.S. at 17-18.

²³ However, in *Calmar, Inc. v. Cook Chemical Co.*, 383 U.S. 1 (1966) and *Colgate-Palmolive Co. v. Cook Chemical Co.*, 383 U.S. 1 (1966), two cases consolidated with *Graham v. John Deere Co.*, the Court dismissed evidence of long-felt but unsolved need and commercial success, noting that they did not "tip the scales of patentability" in this case because the patented device exhibited "exceedingly small and quite non-technical mechanical differences in a device which was old in the art." *Id.* at 36. For a further discussion of *Calmar* and *Colgate-Palmolive*, see *infra* notes 83-88 and accompanying text.

²⁴ See, e.g., *Walker v. General Motors Corp.*, 362 F.2d 56, 60 (9th Cir. 1966) (evidence of commercial success, licensing, and copying does not outweigh clear case of obviousness based on prior art considerations).

²⁵ See *infra* note 95.

²⁶ See, e.g., *In re Fielder*, 471 F.2d 640, 645 (C.C.P.A. 1973) (evidence of commercial success may be directly relevant to issue of obviousness and should always be evaluated before final decision is reached); *In re Tiffin*, 443 F.2d 394, 400 (C.C.P.A. 1971), *modified on other grounds*, 448 F.2d 791

This is the position which the United States Court of Appeals for the Federal Circuit, which has jurisdiction over patent-related appeals from the federal district courts and the Patent and Trademark Board of Appeals,²⁷ has adopted.²⁸

The Federal Circuit has particularly emphasized commercial success,²⁹ long-felt but unsolved need,³⁰ and professional approval³¹ as secondary considerations which are relevant to the obviousness issue. In 1984, in *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, for example, the Federal Circuit ruled that evidence of commercial success compelled a conclusion of nonobviousness, even though the invention would have been held obvious based on the prior art considerations alone.³² Similarly, in *In re Piasecki*, the Federal Circuit, in 1984, ruled that evidence of long-felt but unsolved need and professional approval rebutted a prima facie case of obviousness based on the prior art considerations.³³ Thus, according to the Federal Circuit, commercial success, long-felt but unsolved need, and professional approval are secondary considerations which may be sufficient standing alone to support a legal conclusion of nonobviousness.

The Federal Circuit's position is significant because commentators have suggested that it will likely become the authoritative position regarding the role of secondary considerations in the section 103 nonobviousness analysis.³⁴ According to commentators, the Supreme Court will probably defer to the Federal Circuit, even though the Court's position may be inconsistent with the Federal Circuit's position, because the Court recognizes that Congress intended the Federal Circuit to establish uniform standards in the patent law field, and because the Court's caseload is very heavy.³⁵ Thus, the federal courts and the Patent and Trademark Office will most likely follow the Federal Circuit.³⁶

The purpose of this note is to provide a critical appraisal of the use of secondary considerations in determining nonobviousness. Section I reviews the development of the section 103 nonobviousness requirement.³⁷ Section II then examines the use of individual secondary considerations in evaluating nonobviousness, including the Federal Circuit's treatment of those considerations.³⁸ In section III, this note proposes that to be consistent

(C.C.P.A.) (commercial success and long-felt but unsolved need can rebut prima facie case of obviousness based on prior art considerations).

²⁷ 28 U.S.C. § 1295(a) (1985).

²⁸ See *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1099-1100 (Fed. Cir. 1985) (secondary considerations not only reflect inadequacy of prior art, but compel a conclusion of nonobviousness); *Piasecki*, 745 F.2d at 1472; *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895-96 (Fed. Cir.), cert. denied, 105 S. Ct. 187 (1984) (quoting *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 961 (Fed. Cir. 1983), cert. denied, 105 S. Ct. 127 (1984)).

²⁹ See, e.g., *Simmons*, 739 F.2d at 1575-76.

³⁰ See, e.g., *Piasecki*, 745 F.2d at 1475.

³¹ *Id.*

³² 739 F.2d 1573, 1575-76 (Fed. Cir. 1984), cert. denied, 105 S. Ct. 2138 (1985).

³³ 745 F.2d 1468, 1475 (Fed. Cir. 1984).

³⁴ See Note, *Patent Law Reform via the Federal Courts Improvement Act of 1982: The Transformation of Patentability Jurisprudence*, 17 AKRON L. REV. 453, 455 (1984) [hereinafter Akron Note]; Petrowitz, *Federal Court Reform: The Federal Courts Improvement Act of 1982—And Beyond*, 32 AM. U.L. REV. 543, 557 (1983).

³⁵ Akron Note, *supra* note 34, at 455; Petrowitz, *supra* note 34, at 557.

³⁶ Akron Note, *supra* note 34, at 455; Petrowitz, *supra* note 34, at 557. This is especially true because the Federal Circuit hears all patent-related appeals from the federal district courts and the Patent and Trademark Board of Appeals. See *supra* note 27 and accompanying text.

³⁷ See *infra* notes 44-103 and accompanying text for discussion.

³⁸ See *infra* notes 104-95 and accompanying text for discussion.

with the statutory language of section 103, only those secondary considerations which are probative of the state of mind of a person having ordinary skill in the art at the time the invention was made are relevant in applying section 103.³⁹ Long-felt but unsolved need, professional approval, and near-simultaneous invention are secondary considerations which are relevant to the state of mind issue, and should form the fourth part of the section 103 nonobviousness test.⁴⁰ Commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office, however, are secondary considerations which are not relevant to the state of mind issue, and should never be given any independent weight in evaluating nonobviousness.⁴¹ Instead, commercial success, licensing, and copying by an infringer are only relevant as evidence of long-felt but unsolved need to demonstrate successful fulfillment of the need.⁴² Finally, this note suggests that Congress should amend section 103 to make clear that the section 103 nonobviousness test is a four-part test consisting of the three prior art considerations and secondary considerations which are relevant to the state of mind issue.⁴³

I. DEVELOPMENT OF THE SECTION 103 NONOBVIOUSNESS REQUIREMENT

Article I, section 8 of the Constitution empowers Congress to "promote the Progress of Science and useful Arts" by granting patents to inventors.⁴⁴ Supreme Court decisions have held that inherent in this grant of power is the requirement that for an inventor's discovery to be patentable, it must be sufficiently innovative so that it represents a genuine contribution to public knowledge.⁴⁵ Article I, section 8, according to the Court, thus embodies a cost-benefit analysis.⁴⁶ The Constitution recognizes that while granting patents benefits society by encouraging technological advancement, there is also a cost to society associated with restricting the free flow of knowledge.⁴⁷ It therefore limits the granting of patents to situations in which the invention is so innovative that the benefit to society outweighs the cost.⁴⁸

Congress first attempted to implement the patentability standard expressed in the Constitution by enacting the Patent Act of 1790⁴⁹ which permitted the federal government to grant a patent with a term of fourteen years for an "invention or discovery [which was] sufficiently useful and important . . ."⁵⁰ The Patent Act of 1793 replaced

³⁹ See *infra* notes 196-201 and accompanying text for discussion.

⁴⁰ See *infra* notes 202-18 and accompanying text for discussion.

⁴¹ See *infra* notes 219-55 and accompanying text for discussion.

⁴² See *id.*

⁴³ See *infra* note 256 and accompanying text for discussion.

⁴⁴ U.S. CONST. art. I, § 8, cl. 8.

⁴⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966); *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 154-55 (1950) (Douglas, J., concurring).

⁴⁶ See *Graham*, 383 U.S. at 6-9.

⁴⁷ *Id.* at 9; Note, *Endorsing the Application of Non-Technical Factual Considerations for Obviousness Determinations in Combination Patent Cases — Nichols v. Petersen*, 10 U. Tol. L. Rev. 1011, 1016 (1979) [hereinafter Toledo Note]. For example, one benefit of granting patents is that they encourage investment in long-term research and development. The disadvantage, however, is that patents, which are proprietary monopolies, are not in the best interests of a freely-competitive economy. See *id.*

⁴⁸ See Toledo Note, *supra* note 47, at 1016.

⁴⁹ Act of Apr. 10, 1790, ch. 7, 1 Stat. 109.

⁵⁰ *Id.* The term of a utility patent is currently seventeen years. 35 U.S.C. § 154 (1985). The term of a design patent is currently fourteen years. *Id.* § 173.

the "sufficiently useful and important" test with the tests of utility and novelty.⁵¹ Utility and novelty remained the only statutory prerequisites for patentability until 1952.⁵² In 1851, however, the Supreme Court's decision in *Hotchkiss v. Greenwood*⁵³ created a third prerequisite for patentability, that of "invention."⁵⁴

In *Hotchkiss*, the patent involved clay and porcelain-formed doorknobs.⁵⁵ The only distinction over prior art doorknobs was the substitution of clay or porcelain, both of which were well-known materials, for wood or metal.⁵⁶ Although the patented doorknobs admittedly passed the utility and novelty tests, the Court held the patent invalid, stating that for a discovery to be patentable it had to exhibit a degree of skill and ingenuity which distinguished it from the work of an ordinary mechanic.⁵⁷ The "invention" test thus denied patents for discoveries which, although useful and novel, merely represented minor alterations of existing devices or processes.⁵⁸

During the period between *Hotchkiss* and the 1952 Act, both the lower courts and the Supreme Court encountered problems in applying the *Hotchkiss* invention test because of the difficulty associated with defining invention.⁵⁹ This difficulty led to a variety of invention tests.⁶⁰ One such test, which the Supreme Court applied between 1930 and 1950,⁶¹ was a very strict invention test, which resulted in the Court holding most patents which it examined during this period invalid.⁶²

In 1952, Congress codified the judicially-developed invention requirement as the nonobviousness requirement embodied in section 103 of the 1952 Act,⁶³ thereby making it the third statutory prerequisite of patentability in addition to the utility and novelty requirements.⁶⁴ According to the drafters, the purpose of section 103 was to add uniformity and definiteness to the field of patent law.⁶⁵ Section 103 provides in pertinent part:

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and prior art are such that the subject matter

⁵¹ Act of Feb. 21, 1793, ch. 11, 1 Stat. 318.

⁵² The 1952 Patent Act codified the utility and novelty requirements as sections 101 and 102, respectively, of Title 35, United States Code. See *supra* note 4.

⁵³ 52 U.S. (11 How.) 248 (1850).

⁵⁴ *Id.* at 265.

⁵⁵ *Id.* at 264.

⁵⁶ *Id.* at 265.

⁵⁷ See *id.* at 265-66.

⁵⁸ See *id.*; Toledo Note, *supra* note 47, at 1018.

⁵⁹ See e.g., *McClain v. Ortmyer*, 141 U.S. 419, 427 (1891), where the Supreme Court stated, "The truth is the word [invention] cannot be defined in such a manner as to afford substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not." *Id.*

⁶⁰ See Toledo Note, *supra* note 47, at 1018 n.36.

⁶¹ See, e.g., *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147 (1950); *Cuno Eng'g Corp. v. Automatic Devices Corp.*, 314 U.S. 84 (1941); Toledo Note, *supra* note 47, at 1019.

⁶² Justice Jackson commented on the Court's restrictive position, stating that "the only patent that is valid is one which this Court has not been able to get its hands on." *Jungersen v. Ostby & Barton Co.*, 335 U.S. 560, 572 (1949) (Jackson, J., dissenting). See also Toledo Note, *supra* note 47, at 1019 n.41.

⁶³ Act of Jul. 19, 1952, 35 U.S.C. § 103 (1985).

⁶⁴ See *supra* note 4.

⁶⁵ S. REP. NO. 1979, 82d Cong., 2d Sess. 4, reprinted in 1952 U.S. CODE CONG. & AD. NEWS 2394, 2400.

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.⁶⁶

After section 103 was enacted a split arose among the lower courts as to whether Congress intended the nonobviousness requirement to replace the strict Supreme Court invention test applied between 1930 and 1950 with a more lenient patentability standard.⁶⁷ This split frustrated Congress's attempt to create uniformity and definiteness in the patent law area.⁶⁸ In 1966, the Supreme Court resolved this split in the consolidated cases of *Graham v. John Deere Co.*, *Calmar, Inc. v. Cook Chemical Co.*, and *Colgate-Palmolive Co. v. Cook Chemical Co.* ("*Graham*").⁶⁹

In *Graham*, the Court explained that when Congress added section 103 it intended to codify the judicially-developed "invention" requirement first set forth in *Hotchkiss*.⁷⁰ Congress did not, the Court stated, intend to change the general level of patentability, which the Court asserted had remained invariable despite claims that previous decisions had raised the level.⁷¹ The Court explained that the only difference between the *Hotchkiss* test and section 103 was that in section 103 Congress replaced the vague, ambiguous term "invention" with "nonobviousness" to provide a more definite and workable standard.⁷² The Court indicated its approval of section 103, stating that it represented a

⁶⁶ 35 U.S.C. § 103 (1985). Section 102, the novelty requirement, defines the types of references which qualify as prior art for the purposes of section 103. In 1984, Congress amended section 103 to exclude certain types of prior art by adding the following paragraph:

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Id., amended by Pub. L. No. 98-622, § 103, 98 Stat. 3384 (1984). Subsections (f) and (g) of section 102 provide that a person is entitled to a patent unless:

(f) he did not himself invent the subject matter sought to be patented; or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Id. § 102 (1985).

⁶⁷ See generally Beckett, *Judicial Construction of the Patent Act of 1952—Codification v. Substantive Change*, 37 J. PAT. OFF. SOC'Y 467 (1955); Note, *The Standard of Patentability — Judicial Interpretation of Section 103 of the Patent Act*, 63 COLUM. L. REV. 306 (1963). Cases holding that section 103 codified existing case law as exemplified by *A&P* include *Hawley Prods. Co. v. U.S. Trunk Co.*, 259 F.2d 69, 72 (1st Cir. 1958). Cases holding that section 103 reinstated the *Hotchkiss* standard of patentability include *Lyon v. Bausch & Lomb Optical Co.*, 224 F.2d 530, 534-37 (2d Cir.), cert. denied, 350 U.S. 911 (1955).

⁶⁸ See Toledo Note, *supra* note 47, at 1021.

⁶⁹ 383 U.S. 1 (1966).

⁷⁰ *Id.* at 15.

⁷¹ *Id.* at 17, 19. The Court explained that the strict standard exemplified in its decisions of the previous 20-30 years reflected rapid advances in technology and an increase in the scope of applicable prior art, rather than an actual increase in the standard of patentability over the *Hotchkiss* standard. *Id.* at 19.

⁷² *Id.* at 14. The Court also noted that Congress intended to abolish the flash of genius test. *Id.* at 15. The flash of genius test was first proposed in *Cuno Eng'g Corp. v. Automatic Devices Corp.*,

practical test of patentability consistent with the standard of patentability expressed in the Constitution.⁷³ The Court then proposed that the nonobviousness test mandated under section 103 was a three-part test which involved determining the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art.⁷⁴

After setting out the three-part test mandated under section 103, the Court suggested that certain non-prior art considerations, which the Court referred to as secondary considerations, might also be used as part of the section 103 test.⁷⁵ These secondary considerations, according to the Court, included evidence of commercial success, long-felt but unsolved needs, and failure of others.⁷⁶ The Court explained that secondary considerations were useful in applying section 103 because they focused on the economic and motivational aspects of nonobviousness, rather than the technological aspects.⁷⁷ Secondary considerations, the Court stated, would make it easier for judges and jurors, who often lack training in science or engineering, to evaluate nonobviousness.⁷⁸ The Court also noted that secondary considerations might prevent courts from using hindsight or reading the inventor's discovery into the prior art when determining whether the claimed invention would have been obvious at the time it was made.⁷⁹

After setting out the nonobviousness test required under section 103, the Court applied it to the two patents at issue.⁸⁰ In *Graham v. John Deere Co.*, the patent involved a shock-absorbing device for plowing equipment used in plowing rocky soil.⁸¹ The Court analyzed the pertinent prior art and concluded that the claimed invention would have been obvious because it involved an assemblage of well-known mechanical elements combined in a way taught by the prior art.⁸² In the companion cases of *Calmar* and *Colgate-Palmolive*, the Court similarly invalidated the single patent at issue for obviousness based on the prior art.⁸³ The patent covered a finger-operated pump sprayer with a lid which functioned as a built-in dispenser for liquids.⁸⁴ To prove nonobviousness, the patentee had offered evidence of long-felt but unsolved need and commercial success, two of the secondary considerations which the Court had suggested might be relevant in applying section 103.⁸⁵ The Court, however, held that in this case the secondary

314 U.S. 84 (1941). In *Cuno*, the Supreme Court had stated that one requirement for patentability was that "the new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling." *Id.* at 91. According to the *Graham* Court, *Cuno* simply intended to restate the *Hotchkiss* invention test. *Graham*, 383 U.S. at 15 n.7. Nevertheless, Congress provided in § 103 that "[p]atentability shall not be negated by the manner in which the invention was made," to emphasize that the mental process by which the inventor arrives at his discovery is immaterial. See Reviser's Note accompanying 35 U.S.C. § 103.

⁷³ *Graham*, 383 U.S. at 17.

⁷⁴ *Id.*

⁷⁵ *Id.* at 17-18 (citing Penn. Note, *supra* note 9).

⁷⁶ *Id.*

⁷⁷ *Graham*, 383 U.S. at 35-36.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.* at 19-37.

⁸¹ *Id.* at 19-21.

⁸² *Id.* at 22-26.

⁸³ *Id.* at 36-37.

⁸⁴ *Id.* at 26-27.

⁸⁵ *Id.* at 35.

considerations failed to "tip the scales of patentability."⁸⁶ The Court reasoned that once the scope of the prior art was properly defined,⁸⁷ the prior art clearly suggested the minor mechanical modifications distinguishing the patentee's finger-pump sprayers from existing, prior art finger-pump sprayers.⁸⁸

The Supreme Court in *Graham* thus required courts to evaluate nonobviousness by comparing the prior art with the claimed invention.⁸⁹ Although the Court also indicated that secondary considerations were relevant to the inquiry, it failed to clarify their role because *Calmar* and *Colgate-Palmolive* involved an unambiguous case of obviousness based upon prior art considerations alone.⁹⁰ Thus, it was unclear what the Court intended when it stated that in *Calmar* and *Colgate-Palmolive* secondary considerations "failed to tip the scales of patentability."⁹¹ Specifically, the Court left open the issues of what weight secondary considerations were to be given relative to the three prior art considerations, and whether all secondary considerations were to have equal weight.⁹²

The issues left unanswered by *Graham* produced a great deal of confusion among the lower courts, resulting in the development of two different positions regarding the proper role of secondary considerations.⁹³ One position maintained that secondary considerations were relevant only when the outcome of the nonobviousness test was ambiguous based upon the three prior art considerations alone.⁹⁴ The Supreme Court itself, in cases subsequent to *Graham*, appeared to support this view.⁹⁵ The other position, whose most notable proponent was the Court of Customs and Patent Appeals ("the CCPA"),⁹⁶ maintained that secondary considerations were the fourth part of the section 103 nonobviousness test and in some cases were entitled to greater weight than the three prior art considerations.⁹⁷

⁸⁶ *Id.* at 36.

⁸⁷ *Id.* at 35. The patentee had argued that the scope of the prior art only included references describing pump sprayers, and thus did not include a reference describing pouring spouts for liquid containers. *Id.* The Court, however, disagreed. *Id.*

⁸⁸ *Id.* at 36.

⁸⁹ *Id.* at 17.

⁹⁰ *See id.* at 36.

⁹¹ *See id.*

⁹² *See id.* at 35-36; Akron Note, *supra* note 34, at 465; Toledo Note, *supra* note 47, at 1023.

⁹³ *See* Toledo Note, *supra* note 47, at 1023-24, 1027.

⁹⁴ *See, e.g.,* Walker v. General Motors Corp., 362 F.2d 56, 60 (9th Cir. 1966) (evidence of commercial success, licensing, and copying does not outweigh clear case of obviousness based on prior art considerations).

⁹⁵ Since *Graham*, the Supreme Court has addressed the obviousness issue in four cases: *United States v. Adams*, 383 U.S. 39 (1966); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969); *Dann v. Johnston*, 425 U.S. 219 (1976); *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976). The Court has held that secondary factors such as commercial success "without invention will not make patentability." *Dann*, 425 U.S. at 230 n.4 (quoting *Great Atlantic & Pacific Tea Co. v. Supermarket Corp.*, 340 U.S. 147 (1950)). This could indicate either that secondary considerations will only be evaluated when the question of obviousness based on the three prior art considerations is close, or that secondary considerations will always be evaluated in the obviousness analysis but will only be given substantial weight when the obviousness question based on the three prior art considerations is close. In either case, the Court's position is inconsistent with the CCPA's position set forth in *In re Tiffin*, 443 F.2d 394, 400 (C.C.P.A.), *modified on other grounds*, 448 F.2d 791 (C.C.P.A. 1971), where the CCPA held that secondary considerations outweighed a prima facie case of obviousness based on the prior art. *See infra* note 97.

⁹⁶ In 1982, Congress merged the CCPA with the Court of Claims to create the Federal Circuit. *See infra* note 98.

⁹⁷ *See, e.g.,* *In re Fielder*, 471 F.2d 640, 644 (C.C.P.A. 1973) (evidence of commercial success

The Federal Circuit, which Congress created in 1982⁹⁸ to succeed the CCPA, has adopted the position of the CCPA that secondary considerations represent the fourth part of the section 103 nonobviousness test⁹⁹ and must always be considered before a court makes the legal conclusion of obviousness or nonobviousness.¹⁰⁰ Secondary considerations, the Federal Circuit has asserted, are valuable because they tell the "human, real world story" surrounding the development of the claimed invention.¹⁰¹ Accordingly, the Federal Circuit has held that while the weight given to secondary considerations is a function of the extent of their relationship to the merits of the claimed invention, in some cases they are sufficient standing alone to support a legal conclusion of nonobviousness.¹⁰² The Federal Circuit has placed particular emphasis on the factors of commercial success, long-felt but unsolved need, and professional approval.¹⁰³

To understand the role of secondary considerations in applying the section 103 nonobviousness test, the next section of this note first discusses the general rationale underlying the use of secondary considerations as part of the nonobviousness analysis. It then examines the chain of reasoning through which individual secondary considerations are related to the issue of nonobviousness, and describes the Federal Circuit's treatment of individual secondary considerations in applying the section 103 nonobviousness test.

II. THE USE OF SECONDARY CONSIDERATIONS IN APPLYING THE SECTION 103 NONOBVIOUSNESS TEST

Secondary considerations are non-technical, objective indicia of obviousness or non-obviousness which focus the section 103 inquiry on economic and motivational issues surrounding the development of the claimed invention.¹⁰⁴ They are secondary in that unlike the prior art they are relevant to the question of obviousness through a series of

may be directly relevant to issue of obviousness, and therefore should always be evaluated before final decision is reached); *Tiffin*, 443 F.2d at 400 (commercial success and long-felt but unsolved need can rebut a prima facie case of obviousness based on prior art considerations).

⁹⁸ Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982). In creating the Federal Circuit, Congress merged the CCPA and the Court of Claims. S. REP. NO. 275, 97th Cong., 1st Sess. 2, reprinted in 1982 U.S. CODE CONG. & ADMIN. NEWS 11, 12.

⁹⁹ *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567 (Fed. Cir. 1984). In *Vandenberg*, the Federal Circuit stated:

In determining the question of obviousness, inquiry should always be made into whatever objective evidence of nonobviousness there may be. The so-called "secondary considerations" can often prevent a court from slipping into an impermissible hindsight analysis. They should be considered as a fourth factual inquiry under *Graham* before coming to a conclusion concerning obviousness.

Id. at 1567 (citations omitted).

¹⁰⁰ *Id.* See also *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983); *In re Sernaker*, 702 F.2d 989, 996 (Fed. Cir. 1983). The Federal Circuit has thus adopted the position of the CCPA. See *supra* note 97 and accompanying text.

¹⁰¹ *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1099 (Fed. Cir. 1985).

¹⁰² See *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985); *Panduit*, 774 F.2d at 1099-1100; *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895-96 (Fed. Cir.), cert. denied, 105 S. Ct. 187 (1984) (quoting *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 961 (Fed. Cir. 1983), cert. denied, 105 S. Ct. 127 (1984)).

¹⁰³ See, e.g., *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1575-76 (Fed. Cir. 1984), cert. denied, 105 S. Ct. 2138 (1985) (commercial success); *In re Piasecki*, 745 F.2d 1468, 1475 (Fed. Cir. 1984) (long-felt but unsolved need and professional approval).

¹⁰⁴ See *Graham*, 383 U.S. at 36; Penn. Note, *supra* note 9, at 1171-72.

inferences.¹⁰⁵ These secondary considerations include evidence of commercial success, fulfillment of a long-felt but unsolved need, licensing to potential competitors, copying by an infringer, progress of the patent application through the Patent and Trademark Office, near-simultaneous invention by another researcher in the field, and professional approval by experts in the field.¹⁰⁶

Courts have used secondary considerations both before and after Congress codified the *Hotchkiss* invention test¹⁰⁷ as section 103.¹⁰⁸ Their use developed in response to problems which courts encountered attempting to determine what the prior art would have suggested to workers of ordinary skill in the art at the time the invention was made.¹⁰⁹ One problem was that courts, being composed of laypersons, were often unable to comprehend the technical aspects of the prior art and the claimed invention.¹¹⁰ Although this problem was not serious when the invention was relatively simple and straightforward, it became particularly acute as technology became increasingly complex.¹¹¹ Another problem was that courts could never be sure whether they were relying on hindsight or reading the inventor's own discovery into the prior art.¹¹² The use of adversarial expert witnesses, commentators note, did not alleviate these problems because the experts often offered conflicting testimony, thus failing to provide adequate guidance.¹¹³

The use of secondary considerations substantially simplified the obviousness inquiry for the courts. Because secondary considerations were non-technical, courts could readily apply them in analyzing whether complex inventions would have been obvious.¹¹⁴ In

¹⁰⁵ See Address by D. Chisum, *AIPLA Annual Meeting* (Oct. 26, 1984), reprinted in 1984 *AIPLA Bulletin* 618, 620. For examples of the inferences underlying individual secondary considerations, see *infra* notes 116-83 and accompanying text. Not all courts and commentators agree that secondary considerations are secondary because they are relevant to the obviousness issue through a series of inferences. See *Markey*, 57 J. PAT. OFF. SOC'Y 675, 684 (1975) (secondary considerations are secondary because they occur or become relevant after the invention is made); *Kaiser Indus. Corp. v. McLouth Steel Corp.*, 400 F.2d 36, 41 (6th Cir. 1968), cert. denied, 393 U.S. 1119 (1969) (secondary considerations are secondary in importance to more direct evidence of obviousness). Part of the disagreement may be a result of the Supreme Court's characterization of the considerations as "secondary" in *Graham*, 383 U.S. at 17-18, while citing for support Note, *Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity*, 112 U. PA. L. REV. 1169 (1964), which characterized the considerations as "subtests."

¹⁰⁶ See Penn. Note, *supra* note 9, at 1172-83. See also *supra* notes 14-20 and accompanying text.

¹⁰⁷ See *supra* notes 53-58 and accompanying text for a discussion of the *Hotchkiss* invention test.

¹⁰⁸ For examples of cases before section 103 in which courts have used secondary considerations, see, e.g., *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486 (1877) (commercial success); *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45 (1923) (licensing). For examples of cases after section 103 in which courts have used secondary considerations, see, e.g., *Lyon v. Bausch & Lomb Optical Co.*, 224 F.2d 530 (2d Cir.), cert. denied, 350 U.S. 911 (1955) (long-felt but unsolved need); *W.L. Gore & Assoc., Inc. v. Garlock Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 105 S. Ct. 172 (1984) (long-felt but unsolved need, professional approval, and commercial success).

¹⁰⁹ See *Reiner v. I. Leon Co.*, 285 F.2d 501, 503-04 (2d Cir. 1960), cert. denied, 366 U.S. 929 (1961); *Safety Car Heating & Lighting Co. v. General Elec. Co.*, 155 F.2d 937, 939 (2d Cir. 1946); Penn. Note, *supra* note 9, at 1170.

¹¹⁰ See *Graham*, 383 U.S. at 36; Penn. Note, *supra* note 9, at 1170.

¹¹¹ *Graham*, 383 U.S. at 36; Penn. Note, *supra* note 9, at 1170.

¹¹² See *Panduit*, 774 F.2d at 1091-93; CHISUM, *supra* note 11, at 234.

¹¹³ See Penn. Note, *supra* note 9, at 1170; CHISUM, *supra* note 11, at 234.

¹¹⁴ See *Graham*, 383 U.S. at 35-36; Penn. Note, *supra* note 9, at 1172. Secondary considerations were equally applicable in evaluating whether fairly simple devices and processes would have been

addition, because secondary considerations gave insight into the circumstances surrounding the development of the claimed invention, their use reduces the danger that the obviousness evaluation would be based on hindsight, or that the inventor's discovery would inadvertently be read into the prior art.¹¹⁵ The following is a description of the individual secondary considerations which courts have used in determining whether an invention would have been obvious.

A. Long-Felt but Unsolved Need

Commentators have suggested that the rationale behind the use of long-felt but unsolved need as evidence of nonobviousness is that a defect in an existing product or process creates an economic incentive for researchers to develop a solution to the defect.¹¹⁶ Given the economic reward if a solution is found, one can infer that if the defect persisted for a long period of time, its solution was not obvious.¹¹⁷

In order to show that evidence of long-felt but unsolved need is probative of nonobviousness, courts and commentators agree that patentees must prove two things.¹¹⁸ First, they must prove that the defect existed and that there was a need for a solution to the defect.¹¹⁹ They can do this by showing that other skilled researchers in the field, working under the same state of the art, attempted to find a solution but failed.¹²⁰ Second, the patentees must prove that their solutions satisfied the need.¹²¹ They can do this, for example, by showing that their solutions achieved commercial success.¹²²

obvious. See *Sarkisian v. Winn-Proof Corp.*, 697 F.2d 1313, 1320 n.16 (9th Cir. 1983), *cert. denied*, 460 U.S. 1052 (1984).

¹¹⁵ See *Graham*, 383 U.S. at 36; *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143-44 (Fed. Cir. 1985); *Gore*, 721 F.2d at 1553.

¹¹⁶ See Penn. Note, *supra* note 9, at 1172.

¹¹⁷ See *id.*

¹¹⁸ See *Lyon*, 224 F.2d at 535; CHISUM, *supra* note 11, at 240.1-242.

¹¹⁹ Penn. Note, *supra* note 9, at 1173; CHISUM, *supra* note 11, at 240.1. Factors such as the length of time the need existed and the amount of research which the industry expended to find a solution will influence the weight which evidence of long-felt but unsolved need is given. See *Lyon*, 224 F.2d at 535; *Safety Car*, 155 F.2d at 939.

¹²⁰ See CHISUM, *supra* note 11, at 240.1-241; Penn. Note, *supra* note 9, at 1173-74. The law presumes that those of ordinary skill in the art are familiar with all the pertinent prior art. See *EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 908 (Fed. Cir. 1985) (Davis, J., concurring). However, this presumption is not necessarily true when the prior art is obscure or in a foreign language, and thus not readily accessible to those of ordinary skill in the art. *Id.* Under such circumstances, long-felt but unsolved need is not very probative of nonobviousness because it is likely that the invention would have been developed sooner if the prior art had been well-known. *Id.*

¹²¹ CHISUM, *supra* note 11, at 242.

¹²² See *Gore*, 721 F.2d at 1555, where the Federal Circuit ruled that an increase in annual dollar sales from zero to seven million in the first five years that fabric laminates embodying the claimed invention were available indicated fulfillment of a long-felt need and therefore that the invention would not have been obvious. See also *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 697-98 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984). In *Environmental Designs*, evidence showing that the patentee's process for removing sulfur from effluent gas fulfilled a long-felt need to remove a maximum amount of sulfur from the atmosphere and made stricter sulfur dioxide standards possible indicated that the claimed process would not have been obvious. *Id.* See also CHISUM, *supra* note 11, at 242.

The Federal Circuit has given substantial weight to long-felt but unsolved need as evidence of nonobviousness, as illustrated by *In re Piasecki*.¹²³ In *Piasecki*, the Federal Circuit ruled that evidence of long-felt but unsolved need was sufficient to rebut a prima facie case of obviousness based on prior art considerations.¹²⁴ *Piasecki* involved a patent application covering a lighter-than-air craft capable of lifting heavy loads, but featuring the aerodynamic propulsion and control features of a helicopter.¹²⁵ During the prosecution of the application, the Examiner established a prima facie case of obviousness based on the prior art considerations.¹²⁶ The applicant attempted to rebut the Examiner's case by submitting evidence of long-felt but unsolved need.¹²⁷ The evidence consisted of affidavits showing that a long-felt need existed for an aircraft having the characteristics of the applicant's aircraft, and that in recognition of this need the Navy, NASA, and other governmental agencies sponsored a workshop of experts in aircraft technology to fulfill the need.¹²⁸ At this workshop, the applicant and forty-seven other researchers presented their solutions, but only the applicant's solution received immediate favorable approval from experts and funding for further development.¹²⁹

Despite the applicant's strong showing that his discovery fulfilled a long-felt but unsolved need, the Examiner rejected the application.¹³⁰ The Patent and Trademark Office Board of Appeals upheld the Examiner's decision, noting that secondary considerations by their very nature were never sufficient to rebut a prima facie case of obviousness based on the prior art.¹³¹ The Federal Circuit, however, reversed, holding that in this case evidence of the failure of others to solve a long-standing problem and of immediate acceptance by experts was sufficient to rebut the Examiner's prima facie case.¹³² The court explained that the evidence of long-felt but unsolved need indicated that the claimed invention would have been obvious based on the prior art considerations only when viewed with the aid of hindsight.¹³³ According to the Federal Circuit, therefore, evidence of long-felt but unsolved need is independently relevant to the issue of nonobviousness.¹³⁴

B. Commercial Success

The rationale supporting the use of commercial success as evidence of nonobviousness, according to commentators, is similar to that of long-felt but unsolved need except that it focuses on the actions of buyers rather than researchers working contemporaneously with the patentee.¹³⁵ The commercial success reasoning thus includes an addi-

¹²³ 745 F.2d 1468 (Fed. Cir. 1984).

¹²⁴ *Id.* at 1475.

¹²⁵ *Id.* at 1469-70.

¹²⁶ *Id.* at 1470-71.

¹²⁷ *Id.* at 1473-74.

¹²⁸ *Id.*

¹²⁹ *Id.* at 1475.

¹³⁰ *Id.* at 1471.

¹³¹ *Id.*

¹³² *Id.* at 1475.

¹³³ *See id.* at 1474.

¹³⁴ For other Federal Circuit decisions indicating that evidence of long-felt but unsolved need is independently relevant to the nonobviousness question, see *Panduit*, 774 F.2d at 1099; *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895 (Fed. Cir. 1984).

¹³⁵ *See* Penn. Note, *supra* note 9, at 1175; CHISUM, *supra* note 11, at 244.

tional inferential step. It assumes that the possibility of achieving commercial success provides an economic incentive for researchers to find a solution to a defect in an existing device or process.¹³⁶ Therefore, if the patentee's solution is commercially successful one can infer that it is nonobvious because its commercial success is evidence that others attempted to find a solution but failed.¹³⁷

For evidence of commercial success to be relevant to nonobviousness, commentators and courts have required patentees to prove two things.¹³⁸ First, they must prove that their solutions were in fact commercially successful.¹³⁹ To do so, they must introduce evidence showing market share, growth in market share, or displacement of existing prior art devices.¹⁴⁰ Courts have noted that absolute sales figures alone are not sufficient to establish commercial success because there is no standard against which to compare the figures to determine if they are significant.¹⁴¹ Second, once patentees have established the existence of commercial success, they must show that it is due to the merits of their inventions and not to extrinsic factors such as advertising or concentrated sales efforts.¹⁴²

The Federal Circuit accorded great weight to evidence of commercial success in *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*,¹⁴³ in which the court ruled that evidence of commercial success was sufficient to overcome a conclusion of obviousness based on the prior art considerations.¹⁴⁴ The patent at issue in *Simmons* involved self-adhering screw anchor fasteners for refrigerators.¹⁴⁵ At trial, the parties stipulated to commercial success because both the patentee and the accused infringer had sold millions of fasteners embodying the claimed invention.¹⁴⁶ The trial court nevertheless held the patent invalid for obviousness, explaining that commercial success could not save an invention which

¹³⁶ Penn. Note, *supra* note 9, at 1175. See also Kitch, *Graham v. John Deere Co.: New Standards for Patents*, 49 J. PAT. OFF. SOC'Y 237, 283 (1967).

¹³⁷ Penn. Note, *supra* note 9, at 1175; CHISUM, *supra* note 11, at 244.

¹³⁸ See *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1151 (Fed. Cir. 1983); Penn. Note, *supra* note 9, at 1175-77.

¹³⁹ See Penn. Note, *supra* note 9, at 1175-77; Boyer, *Commercial Success as Evidence of Patentability*, 37 FORDHAM L. REV. 573, 594-95.

¹⁴⁰ See *Kansas Jack*, 719 F.2d at 1150-51; Boyer, *supra* note 139, at 595.

¹⁴¹ See *Kansas Jack*, 719 F.2d at 1151, where the Federal Circuit held that a patent covering a vehicle frame straightening device was invalid for obviousness based on the prior art. The court explained that evidence of commercial success was not probative of nonobviousness because the evidence consisted solely of the number of devices sold. *Id.* See also *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1026-27 (Fed. Cir. 1985).

¹⁴² See *Cable Electric*, 770 F.2d at 1026; *Kansas Jack*, 719 F.2d at 1151. For example, in *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309 (Fed. Cir. 1985), the Federal Circuit held invalid for obviousness a patent covering an integrally molded hinge for securing a marker pen to a pen arm. *Id.* at 317. The court discounted evidence of commercial success because the evidence showed that while devices combining the hinge with disposable pens were commercially successful, the same was not true when the hinge was combined with non-disposable pens, indicating that commercial success was attributable to the public's desire for disposable pens, not the merits of the hinge. *Id.* at 315. See also *Shelcore, Inc. v. Durham Indus., Inc.*, 745 F.2d 621, 627 (Fed. Cir. 1984) (commercial success proportional to advertising efforts and thus not probative of nonobviousness); *Litton Systems, Inc. v. Whirlpool Corp.*, 728 F.2d 1423, 1443 (Fed. Cir. 1984) (difficult to show that commercial success of subject matter of design patent is related to design and not other factors such as improved function or better recognized brand name); Boyer, *supra* note 139, at 595.

¹⁴³ 739 F.2d 1573 (Fed. Cir. 1984), *cert. denied*, 105 S. Ct. 2138 (1985).

¹⁴⁴ *Id.* at 1576.

¹⁴⁵ *Id.* at 1573.

¹⁴⁶ *Id.* at 1574.

was obvious based on the prior art considerations alone.¹⁴⁷ The Federal Circuit, however, reversed the trial court, reasoning that the trial court committed legal error in failing to consider evidence of commercial success.¹⁴⁸ The court agreed with the trial court that the claimed invention would have been held obvious based on the prior art considerations alone, but held that in this case commercial success was entitled to substantial weight and compelled a finding of nonobviousness.¹⁴⁹ *Simmons* is illustrative of the Federal Circuit's position that evidence of commercial success is always relevant and may be sufficient to support a conclusion of nonobviousness.¹⁵⁰

C. Licensing

Licensing of the patent to competitors in the field, commentators maintain, is evidence of nonobviousness because unless these competitors were convinced of the patent's validity, they would copy the patented device or process rather than spending money for a license.¹⁵¹ Courts and commentators have made clear that for evidence of licensing to be relevant, patentees must show that they have in fact licensed their patents to a certain percentage of the total available license market.¹⁵² Moreover, courts and commentators assert, patentees must show that the licensees were motivated by a belief in the patent's validity, rather than by economic considerations such as a decision that licensing was less expensive than defending an infringement suit.¹⁵³

The Federal Circuit does not accord evidence of licensing any independent weight in the section 103 nonobviousness analysis, as illustrated by the court's decision in *EWP Corp. v. Reliance Universal, Inc.*¹⁵⁴ In *EWP*, the Federal Circuit held invalid for obviousness a patent covering a method for producing wire mesh-reinforced concrete pipes having flared ends for mating with the straight ends of adjacent pipes.¹⁵⁵ The patentee offered evidence of a successful licensing program to prove nonobviousness, but the court dismissed the evidence.¹⁵⁶ The court explained that successful licensing programs are not infallible guides to patentability because it is too difficult to establish that their success

¹⁴⁷ *Id.*

¹⁴⁸ *Id.* at 1574-75.

¹⁴⁹ *Id.* at 1575-76.

¹⁵⁰ For other Federal Circuit decisions indicating that evidence of commercial success is independently relevant to the nonobviousness question, see *Panduit*, 774 F.2d at 1099-1100; *Perkin-Elmer*, 732 F.2d at 895.

¹⁵¹ Penn. Note, *supra* note 9, at 1178; CHISUM, *supra* note 11, at 252.

¹⁵² See *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983); Penn. Note, *supra* note 9, at 1178, where the commentator suggests that the weight given to licensing is proportional to the percentage of the available market licensed.

¹⁵³ See *EWP*, 755 F.2d at 907-08 (Fed. Cir. 1985); Penn. Note, *supra* note 9, at 1178-79. Very low royalty payments weaken the inference that licensing is related to the merits of the claimed invention because they suggest that it was in the licensee's economic best interest to take the license, rather than contest validity. Penn. Note, *supra* note 9, at 1178-79. See also *Schwinn Bicycle Co. v. Goodyear Tire & Rubber Co.*, 444 F.2d 295, 300 (9th Cir. 1970), where the court stated that licenses given to manufacture and sell the patented design for a bicycle seat in return for a royalty rate of five cents per unit were not relevant to proving that the design would not have been obvious at the time it was made.

¹⁵⁴ 755 F.2d 898 (Fed. Cir. 1985).

¹⁵⁵ *Id.* at 899-900.

¹⁵⁶ *Id.* at 907-08.

is related to the nonobviousness of the claimed invention, and not factors such as the beliefs of licensees that licensing is less expensive than defending an infringement suit.¹⁵⁷

D. Copying by an Infringer

Commentators and courts have proposed that copying by an infringer is evidence of nonobviousness because it reflects the infringer's belief in the nonobviousness of the claimed invention.¹⁵⁸ In a crowded field, commentators and courts assert, the infringer's copying is a tribute to the nonobviousness of the claimed invention because the infringer copies the invention when he or she recognizes that it alone solves a problem which he or she had been trying unsuccessfully to solve.¹⁵⁹ For copying to be relevant to nonobviousness, however, courts agree that patentees must show that the infringer's copying was related to the merits of their inventions, and not a result of a general lack of respect for patent rights or a belief that it was unlikely that the patentees would be willing or financially able to enforce their rights by instituting an infringement suit.¹⁶⁰

The Federal Circuit has not given evidence of copying by an infringer independent weight in the section 103 nonobviousness analysis.¹⁶¹ For example, in *Cable Electric Products, Inc. v. Genmark Inc.*,¹⁶² the Federal Circuit held that evidence of copying by an infringer is not by itself sufficient to prove nonobviousness when the prior art considerations suggest that the claimed invention would have been obvious.¹⁶³ In *Cable Electric*, the patent involved a photosensitive lamp which automatically turned on when the amount of light surrounding it diminished.¹⁶⁴ The Federal Circuit affirmed an award of summary judgment invalidating the patent for obviousness based on the prior art considerations despite evidence of copying by the accused infringer which the patentee offered to prove nonobviousness.¹⁶⁵ The court explained that because of the difficulty in establishing a direct causal connection between an infringer's decision to copy and the merits of the claimed invention, mere copying by an infringer is insufficient to show nonobviousness.¹⁶⁶

¹⁵⁷ *Id.* The concurring opinion explained that in this case evidence of secondary considerations, including licensing, did not outbalance a finding of obviousness based on the prior art considerations because the two prior art patents, although obscure and in foreign languages, clearly foreshadowed the claimed invention. *Id.* at 908 (Davis, J., concurring).

¹⁵⁸ See *Diamond Rubber Co. v. Consol. Rubber Tire Co.*, 220 U.S. 428, 440-41 (1911).

¹⁵⁹ See *id.* at 441; *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567 (Fed. Cir. 1984); *Jones v. Hardy*, 727 F.2d 1524, 1531 (Fed. Cir. 1984).

¹⁶⁰ See, e.g., *Jones*, 727 F.2d at 1531-32. *Jones* involved a patent covering a mold and method for casting decorated concrete panels. The Federal Circuit considered evidence of copying probative of nonobviousness because the copier, who had extensive experience in the field, copied the patented invention after abandoning prior art casting methods and failing to become a distributor of the patented products. *Id.* at 1532.

¹⁶¹ The Federal Circuit does, however, consider evidence of copying to be relevant when presented with other objective evidence of nonobviousness. See *infra* note 166.

¹⁶² 770 F.2d 1015 (Fed. Cir. 1985).

¹⁶³ See *id.* at 1027-29.

¹⁶⁴ *Id.* at 1018.

¹⁶⁵ *Id.* at 1028-29.

¹⁶⁶ See *id.* at 1028. The Federal Circuit, however, did suggest that copying may be relevant in the context of other evidence of nonobviousness. *Id.* at 1028 n.14. For example, in *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082 (Fed. Cir. 1985), evidence that the infringer copied the one-piece cable ties of the invention, after trying unsuccessfully for many years to develop similar cable

E. Progress Through the Patent and Trademark Office

There is a general belief, commentators note, that the Patent and Trademark Office grants patents too readily.¹⁶⁷ Therefore, courts and commentators have suggested that the fact that a patentee has difficulty obtaining a patent from the Patent and Trademark Office supports an inference that the claimed invention must have been obvious at the time it was made.¹⁶⁸ For example, it may take years for a patent application to issue because the Examiner repeatedly rejects the application, forcing the patent applicant to respond by either disputing the grounds for rejection or by amending the claims.¹⁶⁹ Eventually, it is the patent applicant's dogged persistence, not the nonobviousness of the invention, which causes the Examiner to relent and issue the patent.¹⁷⁰ On the other hand, the Supreme Court has suggested that particularly rapid progress through the Patent and Trademark Office may be evidence of nonobviousness because rapid progress indicates that no relevant prior art references existed.¹⁷¹

F. Near-Simultaneous Invention

If other researchers in the field independently arrived at solutions which were the same or similar to the patentee's solution, commentators propose that an inference that the patentee's solution would have been obvious is created.¹⁷² For evidence of near-simultaneous invention to be probative of obviousness, however, the other researchers must have been working under the same state of the art as the patentee.¹⁷³ Factors such as the level of skill of the simultaneous solvers and the amount of effort it took them to find the solution will influence the amount of weight given to near-simultaneous invention in the obviousness analysis.¹⁷⁴

The Federal Circuit has indicated that near-simultaneous invention is relevant as evidence of obviousness because it illustrates the state of the art prevailing at the time the patentee made his or her discovery.¹⁷⁵ However, the Federal Circuit does not consider near-simultaneous invention to be conclusive proof of obviousness.¹⁷⁶ The Federal Circuit has explained that patent interference practice, which is designed to determine priority among inventors claiming to have made the same invention, implicitly recognizes that

ties, was used to show that the cable ties of the invention filled a long-felt need, and that therefore the invention would not have been obvious at the time it was made. *See id.* at 1099.

¹⁶⁷ *See* Penn. Note, *supra* note 9, at 1183.

¹⁶⁸ *Id.* *See also* Philips Elec. & Pharmaceutical Indus. Corp. v. Thermal & Elec. Indus. Inc., 450 F.2d 1164, 1175 (3d Cir. 1971). In *Philips*, the court held invalid for obviousness a patent covering a method of making glass-to-metal seals used in electrical devices. *Id.* at 1166. The court drew a negative inference of patentability from the fact that it took twelve years for the patent to issue after a "long and tortuous path" in the Patent Office. *Id.* at 1175.

The Federal Circuit has not considered progress through the Patent and Trademark Office, probably because litigants rarely present such evidence.

¹⁶⁹ *See* Penn. Note, *supra* note 9, at 1183.

¹⁷⁰ *See Philips*, 450 F.2d at 1175.

¹⁷¹ *See United States v. Adams*, 383 U.S. 39, 52 (1966) (fact that in a crowded field Examiner could find no references to cite against application weighs in favor of nonobviousness).

¹⁷² Penn. Note, *supra* note 9, at 1180; CHISUM, *supra* note 11, at 258.

¹⁷³ Penn. Note, *supra* note 9, at 1180; CHISUM, *supra* note 11, at 258.

¹⁷⁴ Penn. Note, *supra* note 9, at 1181.

¹⁷⁵ *In re Farrenkopf*, 713 F.2d 714, 720 (Fed. Cir. 1983).

¹⁷⁶ *See Environmental Designs*, 713 F.2d at 698 n.7.

two or more inventors may independently arrive at a patentable invention, which by statutory definition is nonobvious.¹⁷⁷

G. Professional Approval

The fact that experts in the field expressed approval, surprise, disbelief, or skepticism when the patentee first introduced his or her solution to the public is evidence that the solution is nonobvious, according to commentators, because the experts' reactions reflect the general state of mind of those skilled in the art at the time the patentee developed his or her solution.¹⁷⁸ This type of expert opinion, commentators maintain, is more reliable than adversarial expert opinion because it is less susceptible to distortion.¹⁷⁹

The Federal Circuit considers evidence of professional approval to be highly probative of nonobviousness, as illustrated by *In re Piasecki*.¹⁸⁰ In *Piasecki*, the patent applicant submitted evidence showing that when he first introduced the aircraft of his invention, experts immediately hailed it as a significant innovation in aircraft design, with one expert calling it the greatest advance in forty years.¹⁸¹ Experts also praised the patent applicant's aircraft in technical journals and reports.¹⁸² The Federal Circuit ruled that the patent applicant's evidence of professional approval indicated that the claimed invention would not have been obvious at the time it was made, and accordingly reversed the Patent Examiner's conclusion of obviousness based on the prior art considerations.¹⁸³

Individual secondary considerations, therefore, are related to the obviousness issue through a series of inferences.¹⁸⁴ Courts have found secondary considerations to be useful as non-technical evidence of obviousness or nonobviousness.¹⁸⁵ The Federal Circuit's position is that secondary considerations in general form the fourth part of the section 103 nonobviousness test.¹⁸⁶ According to the Federal Circuit, under some circumstances evidence of long-felt but unsolved need,¹⁸⁷ commercial success,¹⁸⁸ and professional approval¹⁸⁹ may be given greater weight than the prior art considerations because

¹⁷⁷ See *id.*

¹⁷⁸ Penn. Note, *supra* note 9, at 1181-82. See also *Gore*, 721 F.2d at 1545; *Woodstream Corp. v. Herter's, Inc.*, 446 F.2d 1143, 1153-57 (8th Cir. 1971). In *Gore*, for example, the Federal Circuit held that the invention, a method of rapidly stretching highly crystalline, unsintered teflon to produce a soft, porous material which the patentee marketed as "Goretex," would not have been obvious at the time it was made. *Gore*, 721 F.2d at 1556. The court considered evidence that suppliers of teflon, such as ICI and du Pont, labeled the new product "magical" and "bewitching," and that du Pont scientists greeted the product with skepticism and disbelief, to be probative of nonobviousness. *Id.* at 1545, 1555-56.

¹⁷⁹ Penn. Note, *supra* note 9, at 1182. But see E. KITCH & H. PERLMAN, *LEGAL REGULATION OF THE COMPETITIVE PROCESS*, ch.6, 889 (2d ed. 1979) (professional approval is a form of hearsay expert testimony because it is not usually addressed to the technical patent question).

¹⁸⁰ 745 F.2d 1468 (Fed. Cir. 1984).

¹⁸¹ *Id.* at 1473.

¹⁸² *Id.* at 1474.

¹⁸³ *Id.* at 1475.

¹⁸⁴ See *supra* notes 104-05 and accompanying text.

¹⁸⁵ See *supra* notes 106-15 and accompanying text.

¹⁸⁶ See *supra* notes 99-103 and accompanying text.

¹⁸⁷ See *supra* notes 116-34 and accompanying text for a discussion of long-felt but unsolved need.

¹⁸⁸ See *supra* notes 135-50 and accompanying text for a discussion of commercial success.

¹⁸⁹ See *supra* notes 178-83 and accompanying text for a discussion of professional approval.

these secondary considerations are highly probative of nonobviousness.¹⁹⁰ On the other hand, the Federal Circuit's decisions indicate that this is not true for evidence of licensing,¹⁹¹ copying by an infringer,¹⁹² and near-simultaneous invention.¹⁹³ The Federal Circuit's position is significant because it states the authoritative position regarding secondary considerations which the federal district courts and the Patent and Trademark Office will follow in applying section 103.¹⁹⁴ The Supreme Court will most likely defer to the Federal Circuit, according to commentators, because the Court apparently recognizes that Congress intended the Federal Circuit to establish uniform standards in the patent law area, and because the Court's caseload is already very heavy.¹⁹⁵ The following section will critically evaluate the use of secondary considerations in the section 103 nonobviousness analysis.

III. A CRITIQUE OF USING SECONDARY CONSIDERATIONS AS PART OF THE SECTION 103 NONOBVIOUSNESS TEST

To be consistent with the statutory language of section 103,¹⁹⁶ secondary considerations which are probative of the state of mind of a hypothetical person having ordinary skill in the art at the time the invention was made should form the fourth part of the section 103 nonobviousness test. Secondary considerations which are relevant to the state of mind issue include long-felt but unsolved need, professional approval, and near-simultaneous invention.¹⁹⁷ These secondary considerations may be given equal or greater weight than prior art considerations. Commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office,¹⁹⁸ however, are not relevant to the state of mind issue, and should never be given any independent weight in the section 103 nonobviousness analysis. Commercial success, licensing, and copying by an infringer are only relevant when offered as evidence of long-felt but unsolved need to show fulfillment of the need.

Section 103 requires courts to evaluate whether the claimed invention would have been obvious at the time it was made to a person having ordinary skill in the art.¹⁹⁹

¹⁹⁰ See *supra* notes 123-34, 143-50, 180-83 and accompanying text.

¹⁹¹ See *supra* notes 151-57 and accompanying text for a discussion of licensing.

¹⁹² See *supra* notes 158-62 and accompanying text for a discussion of copying by an infringer.

¹⁹³ See *supra* notes 172-77 and accompanying text for a discussion of near-simultaneous invention.

¹⁹⁴ See *supra* note 34.

¹⁹⁵ See *supra* note 34. The Federal Circuit's position may conflict with the Supreme Court's position. See *supra* note 95. But see *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1557 (Fed. Cir. 1985). In *Fromson*, the Federal Circuit stated that the requirement that secondary considerations should always be evaluated as part of the obviousness analysis is not inconsistent with *Anderson's Black-Rock*, where the Supreme Court stated that more than commercial success was necessary in order to establish patentable invention. *Id.*

¹⁹⁶ Section 103 requires that to be patentable, an invention must not have been obvious at the time it was made to a person having ordinary skill in the art pertaining to the field of the invention. 35 U.S.C. § 103 (1985).

¹⁹⁷ See *infra* notes 202-18 and accompanying text for a discussion of why long-felt but unsolved need, professional approval, and near-simultaneous invention are relevant to the state of mind issue.

¹⁹⁸ See *infra* notes 219-55 and accompanying text for a discussion of why commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office are not relevant to the state of mind issue.

¹⁹⁹ 35 U.S.C. § 103 (1985).

Therefore, to be consistent with the statutory language of section 103,²⁰⁰ the relevance of individual secondary considerations must depend upon whether they enable courts to infer from the circumstances surrounding the development of the claimed invention the state of mind of a hypothetical person having ordinary skill in the art at the time the claimed invention was made. Secondary considerations which serve this purpose provide a frame of reference for assessing what the pertinent prior art would have suggested to this hypothetical person, and thus prevent courts from relying on hindsight or reading the inventor's own discovery into the prior art.²⁰¹

A. Secondary Considerations Which Are Relevant in Applying Section 103

Long-felt but unsolved need, near-simultaneous invention, and professional approval are relevant in applying the section 103 nonobviousness requirement because each gives direct insight into the conventional wisdom in the field of the invention at the time the patentee made his or her discovery.²⁰² Long-felt but unsolved need and near-simultaneous invention illustrate the conventional wisdom by examining the efforts of other researchers in the field working under the same state of the art as the patentee to solve an existing defect in a device or process. From evidence of long-felt but unsolved need one infers nonobviousness from the failure of these researchers to find a solution and the success of the patentee's solution.²⁰³ Conversely, from evidence of near-simultaneous invention one infers obviousness from the fact that these researchers developed solutions which were identical or similar to the patentee's solution.²⁰⁴ Professional approval illustrates the conventional wisdom by examining the reactions of experts when the patentee first introduced his or her discovery.²⁰⁵ If these experts, who presumably have a thorough knowledge of the conventional wisdom in the art, expressed disbelief or showered the patentee's discovery with praise, one can infer that the discovery would not have been obvious.²⁰⁶

The Federal Circuit's decision in *Piasecki* illustrates the utility of long-felt but unsolved need in applying section 103.²⁰⁷ In *Piasecki*, the court carefully applied the long-felt but unsolved need test as commentators have suggested it should be applied.²⁰⁸ First,

²⁰⁰ *Id.*

²⁰¹ See *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966). Although a second reason for using secondary considerations is that they are easier than technical facts for courts to apply in evaluating the obviousness issue, this is not their primary function. It is the responsibility of the attorneys to present the technical issues to the court in an understandable manner.

²⁰² The law presumes that the hypothetical person having ordinary skill in the art thinks along the lines of the conventional wisdom in the art. *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985).

²⁰³ See *supra* notes 116-22 and accompanying text for a discussion of the relationship between evidence of long-felt but unsolved need and nonobviousness.

²⁰⁴ See *supra* notes 172-74 and accompanying text for a discussion of the relationship between evidence of near-simultaneous invention and obviousness.

²⁰⁵ See *supra* notes 178-79 and accompanying text for a discussion of the relationship between evidence of professional approval and nonobviousness.

²⁰⁶ See *supra* notes 178-79 and accompanying text for a discussion of the relationship between evidence of professional approval and nonobviousness.

²⁰⁷ 745 F.2d 1468 (Fed. Cir. 1984). See *supra* notes 123-33 and accompanying text for a discussion of the Federal Circuit's decision in *Piasecki*.

²⁰⁸ See *Piasecki*, 745 F.2d at 1473-75. See *supra* notes 119-22 and accompanying text for a discussion of how commentators have suggested the long-felt but unsolved need test should be applied.

the court found that a recognized long-felt need existed by noting that several governmental agencies were looking for an aircraft which could lift heavy loads but did not suffer from the lack of control which existing aircraft exhibited, and that these agencies sponsored a workshop to find a solution.²⁰⁹ At the workshop, forty-seven specialists in aircraft technology proposed solutions to the problem, but all were unsuccessful.²¹⁰ Next, the court found that the applicant's solution successfully fulfilled the need, as evidenced by the immediate approval of experts and the decision of private and governmental sources to fund further development.²¹¹

Piasecki also illustrates the utility of professional approval in applying section 103.²¹² In *Piasecki*, the Federal Circuit, analyzing evidence of professional approval as commentators have suggested it should be analyzed,²¹³ examined the reactions of experts in the aircraft technology field when the applicant first introduced his invention.²¹⁴ Evidence that experts regarded the invention as a significant innovation in airship design, and perhaps the greatest advance in forty years, indicated that the invention would not have been obvious at the time it was made.²¹⁵

The weight which the Federal Circuit gave to the secondary considerations of long-felt but unsolved need and professional approval in *Piasecki* was consistent with the mandate of section 103. Evidence of long-felt but unsolved need and professional approval raised an inference of nonobviousness by illustrating the state of mind of a person having ordinary skill in the art at the time the invention was made, and rebutted the Examiner's conclusion of obviousness based on a hindsight evaluation of the prior art.²¹⁶ Therefore, by mitigating the effect of hindsight on the obviousness determination, long-felt but unsolved need and professional approval form a valuable part of the section 103 test and may properly be given equal or greater weight than prior art considerations.

Although the Federal Circuit has not given much weight to near-simultaneous invention, such evidence is relevant in showing that the claimed invention would have been obvious because it manifests the state of the art prevailing at the time the patentee made his or her discovery.²¹⁷ Thus, evidence of near-simultaneous invention enables courts to infer the state of mind of a person having ordinary skill in the art at the time of the discovery, and should always be considered as part of the section 103 test. However, evidence of near-simultaneous invention should not, by itself, preclude patentability because patent interference practice recognizes that an invention may be patentable, and hence by statutory definition nonobvious, despite contemporaneous development by two or more inventors.²¹⁸

Thus, long-felt need, professional approval, and near-simultaneous invention are secondary considerations which are relevant in applying section 103 because each illus-

²⁰⁹ *Piasecki*, 745 F.2d at 1473-74.

²¹⁰ *Id.* at 1475.

²¹¹ *Id.*

²¹² *See id.* at 1473-75.

²¹³ *Id.* *See supra* notes 178-79 and accompanying text for a discussion of how commentators have suggested evidence of professional approval should be evaluated.

²¹⁴ *Piasecki*, 745 F.2d at 1473-75.

²¹⁵ *Id.*

²¹⁶ *See id.* at 1474-75.

²¹⁷ *In re Farrenkopf*, 713 F.2d 714, 720 (Fed. Cir. 1983).

²¹⁸ *See Environmental Designs, Ltd. v. Union Oil of California*, 713 F.2d 693, 698 n.7 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984); *E.I. du Pont de Nemours & Co. v. Berkley & Co., Inc.*, 620 F.2d 1247, 1265 (8th Cir. 1980).

trates the conventional wisdom in the field of the invention when the invention was made. These secondary considerations are probative of the state of mind of a person having ordinary skill in the art when the patentee made his or her discovery, and should form the fourth part of the section 103 nonobviousness test.

B. Secondary Considerations Which Are Not Relevant in Applying Section 103

Commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office are not independently relevant in applying section 103 because they indicate nothing regarding the conventional wisdom in the art prevailing at the time the patentee made his or her discovery. This is because these secondary considerations do not examine the actions of experts and researchers actually involved in the field at the time the patentee made his or her discovery. Instead, these secondary considerations focus on the actions of buyers, businesspeople, infringers, and the Patent and Trademark Office, respectively, which may be influenced by a variety of factors completely unrelated to the merits of the claimed invention.²¹⁹

Commercial success is not independently relevant in applying section 103 because it attempts to infer nonobviousness from the favorable response of buyers to devices or processes embodying the patentee's discovery.²²⁰ The rationale supporting the use of commercial success as evidence of nonobviousness rests on two assumptions. First, that the possibility of achieving commercial success motivated other researchers to find a solution to the problem which the patentee solved.²²¹ Second, that if the patentee's solution was commercially successful, these researchers failed to solve the problem, and thus the patentee's solution could not have been obvious.²²² The supporting rationale also assumes that the buyers' response is due to the innovative qualities of the patentee's discovery, rather than the operation of extraneous forces.²²³ The supporting rationale, therefore, is similar to the long-felt but unsolved need rationale, except that it infers the failure of other researchers from the actions of buyers, rather than from the actions of the researchers themselves.

The rationale supporting the use of commercial success is flawed in two ways. First, there is no basis for inferring the failure of others from the commercial success of the patentee's solution.²²⁴ The only legitimate means for demonstrating the failure of others is through direct proof. Second, it is unreasonable to assume that the buyers' response is due to the merits of the claimed invention.²²⁵ Unlike the reaction of experts when the patentee first introduces his or her discovery, the reaction of buyers could be due to numerous factors unrelated to innovation, including successful advertising and market-

²¹⁹ See *infra* notes 220-55 and accompanying text.

²²⁰ See *Kitch, Graham v. John Deere Co.: New Standards for Patents*, 49 J. PAT. OFF. SOC'Y 237, 283 (1967).

²²¹ See *supra* notes 135-37 and accompanying text for a discussion of the rationale underlying the use of commercial success as evidence of nonobviousness.

²²² See *supra* notes 135-37 and accompanying text for a discussion of the rationale underlying the use of commercial success as evidence of nonobviousness.

²²³ See *supra* notes 139-42 and accompanying text for a discussion of the rationale underlying the use of commercial success as evidence of nonobviousness.

²²⁴ *Kitch, supra* note 220, at 283.

²²⁵ *Id.*

ing efforts,²²⁶ especially where consumer products are involved.²²⁷ Although courts purport to isolate the exact cause of favorable buyer response, in practice it is almost impossible to do so.²²⁸ Commentators advocating the use of commercial success have suggested that the commercial success analysis should involve two steps.²²⁹ First, the patentee must establish the actual existence of commercial success from proof of market share, comparative sales figures, etc., and not from absolute sales figures.²³⁰ Second, the patentee must demonstrate a nexus between the commercial success and the merits of the claimed invention.²³¹ Courts, however, tend to ignore this analysis, as illustrated by the Federal Circuit's decision in *Simmons*.²³²

In *Simmons*, the decision turned entirely upon what the court characterized as extremely strong evidence of commercial success.²³³ The evidence, however, consisted only of the parties' stipulation that both the patentee and accused infringer had sold millions of devices embodying the claimed invention.²³⁴ There was no attempt to show market share, comparative sales figures, or other accepted indicia of commercial success.²³⁵ Nevertheless, the court held that the absolute sales figures established the existence of commercial success.²³⁶ The court then stated that the requisite nexus existed between commercial success and the merits of the patentee's invention, citing the portion of the trial court's opinion describing the absolute sales figures for support.²³⁷ The court concluded that the commercial success evidence in *Simmons* compelled a finding of nonobviousness.²³⁸ The court noted, however, that it would have reached the opposite result without the commercial success evidence.²³⁹

As the Federal Circuit's decision in *Simmons* demonstrates, commercial success is both irrelevant and misleading, especially when not scrutinized rigorously, because it shifts the focus of the obviousness inquiry from the state of mind of a worker having ordinary skill in the art at the time the invention was made to the economic value of the patent.²⁴⁰ Economic value alone, however, does not make an invention patentable.²⁴¹ Therefore, evidence of commercial success should never be given any independent weight in applying section 103. Instead, such evidence is only relevant when submitted

²²⁶ See Boyer, *supra* note 139, at 595; CHISUM, *supra* note 11, at 244.

²²⁷ Boyer, *supra* note 139, at 595.

²²⁸ See CHISUM, *supra* note 11, at 244.

²²⁹ See *supra* notes 139-42 and accompanying text.

²³⁰ See *id.*

²³¹ See *id.*

²³² 739 F.2d 1573 (Fed. Cir. 1984), *cert. denied*, 105 S. Ct. 2138 (1985). See *supra* notes 143-49 for a discussion of *Simmons*.

²³³ See *Simmons*, 739 F.2d at 1576.

²³⁴ See *id.* at 1574.

²³⁵ See *id.*

²³⁶ See *id.* at 1574-76.

²³⁷ *Id.* at 1574-75.

²³⁸ *Id.* at 1576.

²³⁹ See *id.* at 1575-76.

²⁴⁰ See Kitch, *supra* note 220, at 287.

²⁴¹ Article I, section 8, clause 8 of the Constitution, as interpreted by the Supreme Court, requires that for an invention to be patentable, the invention must be sufficiently innovative to justify granting the inventor a monopoly over its use. See *supra* notes 44-48 and accompanying text.

as evidence of long-felt but unsolved need to demonstrate successful fulfillment of the need.²⁴²

Like commercial success, evidence of licensing is irrelevant to the obviousness analysis. The rationale supporting the use of licensing assumes that business competitors purchase a license, instead of copying the patented device or process, because they are convinced that the claimed invention would not have been obvious at the time it was made.²⁴³ This says more about the state of mind of the businesspeople, however, than about the state of the art prevailing at the time the patentee made his or her discovery. The decision to license may simply reflect the fact that they considered licensing a less expensive alternative than defending an infringement suit, especially if the royalties are low.²⁴⁴ It is almost impossible to establish a clear nexus between a business competitor's decision to purchase a license and the merits of the claimed invention.

The Federal Circuit recognized the difficulty in establishing a nexus between licensing and the merits of the claimed invention in *EWP*.²⁴⁵ Accordingly, the court refused to give evidence of a successful licensing program, which the patentee had offered as proof of nonobviousness, greater weight than the prior art considerations, which the court held suggested the claimed invention.²⁴⁶ As the Federal Circuit's decision in *EWP* correctly indicates, evidence of licensing should never be given any independent weight in evaluating nonobviousness because it is irrelevant to the state of mind of a person having ordinary skill in the art at the time the inventor made his or her discovery. Instead, evidence of licensing, like evidence of commercial success, is only relevant as evidence of long-felt but unsolved need to show successful fulfillment of the need.

Copying by a patent infringer is similarly not probative of nonobviousness. The rationale supporting the use of copying as evidence of nonobviousness assumes that the infringer copies the patented invention when he or she realizes that it provides a solution to a problem which he or she had previously tried unsuccessfully to solve.²⁴⁷ The infringer's copying, according to this rationale, reflects the infringer's belief in the nonobviousness of the invention.²⁴⁸ In actuality, however, copying by an infringer may reflect a business decision that copying was less expensive than obtaining a license. It may also indicate a general lack of regard for patent rights.²⁴⁹ It does not, however, illustrate the state of mind of a person having ordinary skill in the art at the time the invention was made because it focuses on the actions of business competitors, rather than researchers working contemporaneously with the patentee. In addition, the copying rationale is diametrically opposed to the licensing rationale, which asserts that nonobviousness is demonstrated by the licensee's decision not to copy the invention.

²⁴² See *CHISUM*, *supra* note 11, at 242.

²⁴³ See *supra* note 151 and accompanying text for a discussion of the basis for using licensing as evidence of nonobviousness.

²⁴⁴ See *supra* note 153.

²⁴⁵ 755 F.2d 898, 907-08 (Fed. Cir. 1985). See *supra* notes 154-57 and accompanying text for a discussion of *EWP*.

²⁴⁶ See *EWP*, 755 F.2d at 907-08.

²⁴⁷ See *supra* note 159.

²⁴⁸ See *id.*

²⁴⁹ *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1028 (Fed. Cir. 1985). See also Penn. Note, *supra* note 9, at 1179, where the commentator notes that "[s]ince . . . the ordinary bias of competitors would be to disrespect the validity of a threatening patent, such evidence [of copying] ought rarely be determinative."

In *Cable Electric*,²⁵⁰ the Federal Circuit correctly observed that because it is not possible to establish an unambiguous nexus between copying and the merits of the patented invention, it would be overly simplistic to use evidence of copying to support a conclusion of nonobviousness.²⁵¹ The court then properly held the patent at issue invalid for obviousness based on prior art considerations.²⁵² As the Federal Circuit's decision in *Cable Electric* shows, evidence of copying by an infringer is not probative of nonobviousness because it does not help courts avoid relying on hindsight or reading the inventor's own disclosure into the prior art when applying the section 103 nonobviousness test. Thus, evidence of copying by an infringer is irrelevant and should never be given any independent weight in the context of section 103. Instead, copying by an infringer is only relevant when presented with evidence of long-felt but unsolved need, where it may be used to show that other skilled workers failed to solve the problem which the patentee solved.²⁵³

Progress through the Patent and Trademark Office is the least reliable of all the secondary considerations because the absence of a direct causal relationship between it and the obviousness or nonobviousness of the claimed invention is the most pronounced. A patent application's progress through the Patent and Trademark Office may be affected by any number of factors unrelated to its merits, not the least of which is the ability of the patent attorney responsible for it.²⁵⁴ Its progress in no way reflects the circumstances surrounding the development of the claimed invention. Therefore, courts should completely disregard evidence of progress through the Patent and Trademark Office in applying section 103.

Commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office are secondary considerations which are not independently relevant in applying section 103. These secondary considerations are not independently relevant because they infer nonobviousness from the actions of buyers, businesspeople, infringers, and the Patent and Trademark Office, respectively, which do not illustrate the state of mind of a person having ordinary skill in the art at the time the invention was made. Commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office will only mislead courts in evaluating nonobviousness by improperly focusing the section 103 inquiry solely on the economic value of the claimed invention.²⁵⁵ Thus these secondary considerations should not form the fourth part of the section 103 test, and should never be entitled to any independent weight in evaluating nonobviousness.

CONCLUSION

Section 103 requires as a condition for patentability that the invention must not have been obvious at the time it was made to a person having ordinary skill in the art.

²⁵⁰ 770 F.2d 1015 (Fed. Cir. 1985). See *supra* notes 162-66 and accompanying text for a discussion of *Cable Electric*.

²⁵¹ *Cable Electric*, 770 F.2d at 1028.

²⁵² *Id.*

²⁵³ See *id.* at 1028 n.14. Therefore, it is the copier's *failure* to solve the problem which is relevant, and not his subsequent copying.

²⁵⁴ KITCH & PERLMAN, *supra* note 179, at 889-90.

²⁵⁵ Kitch, *supra* note 220, at 287. This is contrary to the mandate of article I, section 8 of the Constitution. See *supra* note 241.

Courts have used non-technical, objective factors called secondary considerations as aids in evaluating nonobviousness. The purpose of using secondary considerations in the context of section 103 is to ascertain the state of mind of a hypothetical worker having ordinary skill in the art at the time the invention was made by examining the circumstances surrounding the development of the invention. This purpose is consistent with the statutory language of section 103 which requires that the claimed invention must not have been obvious at the time it was made.

Long-felt but unsolved need, professional approval, and near-simultaneous invention are secondary considerations which are relevant to the state of mind issue because each directly illustrates the conventional wisdom in the field of the invention when the invention was made. Therefore, these three secondary considerations should form the fourth part of the section 103 nonobviousness test, and may properly be given equal or greater weight than prior art considerations. On the other hand, commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office are secondary considerations which are not relevant to the state of mind issue because there is no clear nexus between each of these secondary considerations and the merits of the claimed invention. Therefore, commercial success, licensing, copying by an infringer, and progress through the Patent and Trademark Office should never be given any independent weight in applying section 103. Instead, commercial success, licensing, and copying by an infringer are only relevant as evidence of long-felt but unsolved need to demonstrate successful fulfillment of the need.

The most effective way to resolve the controversy surrounding the proper role of secondary considerations in applying the section 103 nonobviousness requirement is for Congress to amend section 103. Congressional action is necessary because it is unlikely that the Supreme Court will disturb the precedents established by the Federal Circuit regarding secondary considerations.²⁵⁶ The amendment should make it clear that the relevancy of secondary considerations depends on whether they are probative of the state of mind of a person of ordinary skill in the art at the time the inventor made his or her discovery. The amendment should then provide that when available, secondary considerations relevant to the state of mind issue form the fourth inquiry under section 103, in addition to the three prior art-related inquiries. The amendment should also be careful to note that the absence of secondary considerations will not negate the patentability of the claimed invention because the existence of secondary considerations is not a requirement for patentability. In this way it is possible to ensure a role in the section 103 analysis for only those secondary considerations which are relevant to the state of mind issue.

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²⁵⁶ See *supra* note 34 and accompanying text.