

What Is “Obvious” Is Not at All Obvious: A Call for a More Fundamental Change to U.S. Patent Law

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I. Introduction	161
II. History of Obviousness Jurisprudence.....	164
A. <i>Graham v. John Deere Co.</i>	164
B. The TSM Test and Hindsight.....	165
C. <i>KSR International Co. v. Teleflex Inc.</i>	167
III. Proposed Text of 35 USC § 103.....	171
A. Specific Criteria of Expectability.....	174
B. Example Application of the Proposed Statute	175
IV. Summary and Conclusion	179
A. Promotes Patent Harmonization	180
B. Efficiency and Clarity	181

In this paper, a proposal is made to revise 35 U.S.C. § 103 because of the difficulties in interpreting the ambiguous term “obvious.” The jurisprudence on the interpretation of § 103 is explored. In accordance with jurisprudence on this issue, the following three part test for establishing obviousness is proposed: i) demonstrate that the prior art shows the elements of the claimed invention in a combined or modified form; ii) demonstrate a reason why one skilled in the art would make the combination or modification; and iii) demonstrate that the combination or modification provides results that one skilled in the art at the time of the invention could have anticipated. It is asserted that this test more directly and clearly reflects the distinction between good engineering and invention. This clarity would be beneficial to the courts, the U.S. Patent and Trademark Office, and, perhaps to foreign jurisdictions.

I. Introduction

Patent law reform is all the rage now. The U.S. has dramatically changed its patent system from a first-to-invent to a first-to-file system.¹ There is currently a

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¹ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

vigorous debate on how to deal with the patent troll problem,² although Congress has done little of substance to address that problem so far. However, there is an ambiguity in the patent laws that has generated decades of confusion and consumed countless judicial and administrative resources. Still, there is very little discussion of reforming the patent code to address this problem.

It is axiomatic that the terms of statutory law must have a clearly understood meaning, or at least a court of law must be able to ascertain the meaning to the extent possible. Justice Stewart's formulation for "obscenity"³ notwithstanding, Congress and the courts both go to great lengths to make the law as clear as possible. One glaring exception is the word "obvious" in § 103 of the patent laws.⁴

U.S. patent law defines when a claimed invention cannot be patented over the prior art.⁵ If a prior art reference shows every element of a particular claim, the claim is said to be anticipated and is not patentable under 35 U.S.C. § 102.⁶ However, the law recognizes that a simple modification or combination of the prior art also should not be patentable because that invention is not advancing technical knowledge.⁷ To that end, Congress included § 103 in the 1952 revisions to the Patent Act, which states that a claimed invention that is not anticipated under § 102 may nonetheless be unpatentable if it is obvious over the prior art.⁸ But what does it mean for an invention to be obvious?

A simple thought experiment helps illuminate the inadequacy of the term obvious as a legal standard. Assume two parties are in court. One claims the patented invention is obvious over the prior art. The other claims it is not. Although the term obvious is a patent law term of art, it has never been expressly defined in any of the patent acts. The dictionary, however, says that obvious means "easily discovered, seen, or understood."⁹ How does one objectively prove that something

² David Segal, *Has Patent, Will Sue: An Alert to Corporate America*, N.Y. TIMES (July 13, 2013), http://www.nytimes.com/2013/07/14/business/has-patent-will-sue-an-alert-to-corporate-america.html?pagewanted=all&_r=0.

³ See *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) ("I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description [hard-core pornography]; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it, and the motion picture involved in this case is not that.").

⁴ 35 U.S.C. § 103 (2012).

⁵ 35 U.S.C. § 102 (2012).

⁶ See e.g., *Hoover Grp., Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 302 (Fed. Cir. 1995) ("Invalidity based on lack of novelty (often called 'anticipation') requires that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee.").

⁷ See, e.g., *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 130–31 (1950) ("To bring these devices together and apply them to save the time of customer and checker was a good idea, but scores of progressive ideas in business are not patentable, and we conclude on the findings below that this one was not.").

⁸ 35 U.S.C. § 103.

⁹ *Obvious*, MERRIAM-WEBSTER, <http://www.merriam-webster.com/dictionary/obvious> (last visited Oct. 20, 2014).

would have been easily understood at the time of the invention¹⁰ or before the effective filing date?¹¹ By what objective standard do you prove that one or the other party is wrong? Importantly, how does one avoid hindsight in making this determination?¹² More fundamentally, it is clear that “obviousness” is meant to define the all-important line between good technical skill and invention.¹³ Where is the precise line between a “skillful mechanic” and an inventor? How does one objectively determine where that line is?

One party will say that the invention is simply a combination of known elements. As Judge Markey wrote in his seminal article *Why Not the Statute?*, “Only God works from nothing. Man must work with old elements.”¹⁴ The point is that every invention is a combination of old elements on some level. However, we are still left with the problem that the statute tells us nothing about how to determine if any combination of the prior art is obvious or not. After gathering the relevant prior art and comparing it to the invention, you are still left with one side saying it is obvious and the other saying it is not with no objective basis to rule for one side or the other.

It may be argued that the courts have filled this gap with extensive jurisprudence. That is true. This paper relies on that jurisprudence. However, this issue necessarily drew the courts into either divining the policy intended by Congress or in setting policy according to their own lights. Of course, courts are often called upon to pronounce on policy issues. It is not possible for Congress to anticipate every eventuality. Nonetheless, it is not the role of the courts to establish policy.¹⁵ The crucial point of whether an invention is or is not obvious over the prior art is one of the dividing lines between what is or is not a patentable invention. The legislative authority should define such a key principle because it is incumbent on Congress to draft laws that minimize ambiguity. By resting this dividing line on the inscrutable word obvious, Congress has shirked its responsibility.

The formulation of this concept in other countries suffers from a similar deficiency. In most patent systems outside of the United States, an invention is not patentable unless it has some “inventive step.”¹⁶ This is very similar to the U.S. con-

¹⁰ The pre-AIA standard. 35 U.S.C. § 103 (2006).

¹¹ The post-AIA standard. 35 U.S.C. § 103 (2012).

¹² See *infra* Part I.A.

¹³ See, e.g., *Hotchkiss v. Greenwood*, 52 U.S. 248 (1850) (discussing the distinction between a “skillful mechanic” and an “inventor”).

¹⁴ Howard T. Markey, *Why Not the Statute?*, 65 J. PAT. OFF. SOC’Y 331, 334 (1983); see also *Stratoflex Inc. v. Aeroquip Corp.*, 713 F. 2d 1530, 1540 (Fed Cir. 1983) (“Virtually all patents are ‘combination patents,’ if by that label one intends to describe patents having claims to inventions formed of a combination of elements.”).

¹⁵ See Kathleen M. O’Malley, *The Respective Roles of the Courts and Congress in Shaping Patent Policy*, 42 AIPLA Q.J. 1, 1–3 (2014).

¹⁶ See, e.g., European Patent Convention, art. 56, Oct. 5, 1973, 1065 U.N.T.S. 199 (“An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art.”).

cept of obviousness. Some foreign jurisdictions even equate the two concepts.¹⁷ However, it is perhaps even more difficult to determine a meaning for the term inventive step. Obvious is at least a commonly used word. Inventive step is a term of art used only in the context of patent law.

As noted above, courts and administrative authorities have developed a workable conceptual framework for this concept. Though workable, that framework is cumbersome, opaque, and too malleable. A cumbersome framework has its costs. Patent examiners struggle with this framework daily.¹⁸ Courts collect voluminous briefing and expert reports to address this framework. It is the author's contention that by drawing on the work done by the courts to develop this framework, a more concrete statutory formulation can be devised. Such a framework would clarify the task of determining the line between mere technical skill and invention, thus promoting efficiency and clarity in the courts and the patent administrative offices.

This paper focuses on U.S. case law to develop a more concrete statutory formulation. A complete review of the U.S. case law on § 103 is beyond the scope of this paper and unnecessary for its purposes. Rather, it reviews two of the most important cases in the development of the concept of obviousness, *Graham v. John Deere Co.*¹⁹ and *KSR International Co. v. Teleflex Inc.*,²⁰ along with some important cases regarding the development of the teaching, suggestion or motivation test (TSM test).

II. History of Obviousness Jurisprudence

A. *Graham v. John Deere Co.*

The 1952 revision of the U.S. patent laws set forth the condition that an invention is not patentable if it is obvious over the prior art.²¹ It is not clear from legislative comments what was meant by the term obvious other than what was suggested in Supreme Court cases.²²

The first important U.S. Supreme Court case to address the meaning of § 103 was *Graham v. John Deere Co.*²³ This case involved a plow that has chisels (plow shanks) mounted to a plow frame.²⁴ When a plow shank strikes a rock, the force can damage the plow shank or the frame of the plow.²⁵ The disputed patent "relates to a spring clamp which permits plow shanks to be pushed upward when they hit obstructions in the soil, and then springs the shanks back into normal position when

¹⁷ *Id.*

¹⁸ See U.S. Patent & Trademark Office, Manual of Patent Examining Procedure § 2141 (9th ed. Mar. 2014).

¹⁹ 383 U.S. 1 (1966).

²⁰ 550 U.S. 398 (2007).

²¹ 35 U.S.C. § 103 (1952).

²² See P.J. Federico, *Commentary on the New Patent Act*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 161, 180–84 (1993) (discussing Supreme Court cases suggesting a nonobviousness requirement).

²³ 383 U.S. 1.

²⁴ *Id.* at 19–20.

²⁵ *Id.* at 21.

the obstruction is passed over.”²⁶ The Court found that this patent was obvious over the prior art—the Graham patent and a clamp device known as the Glencoe product.²⁷ As such, the patent at bar was invalid.

In addition to analyzing the patented technology, the Court made important legal pronouncements. First, the Court determined that the intent of the drafters of § 103 in using the term obvious was simply to incorporate judicial precedent.²⁸ A succinct statement of the case law prior to 1952 is provided in *Hotchkiss v. Greenwood*:²⁹

[U]nless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful [sic] mechanic, not that of [an] inventor.³⁰

Second, the Court pronounced a core statement of analysis regarding § 103 that has become perhaps the most cited passage in U.S. patent law:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.³¹

Of note, the only statement regarding the actual determination of obviousness is “[a]gainst this background, the obviousness or nonobviousness of the subject matter is determined.”³² Perhaps realizing that the term obviousness in and of itself offered nothing to assist the Court, the Court made no attempt to define it.

B. The TSM Test and Hindsight

As a practical matter, the only cases in which § 103 is invoked are where no prior art reference shows every element of the claimed invention.³³ If a prior art reference did show every element of the claimed invention, then the claim is invalid under § 102.³⁴ Therefore, § 103 is invoked when prior art references combined show that every element of the claim at issue is present in the prior art.³⁵ However, given enough references along with the explanation of the invention in “full, clear,

²⁶ *Id.* at 19–20.

²⁷ *Id.* at 25–26.

²⁸ *Id.* at 17.

²⁹ 52 U.S. 248 (1850).

³⁰ *Id.* at 267.

³¹ *Graham*, 383 U.S. at 17–18.

³² *Id.* at 17.

³³ See, e.g., *id.* at 22–26 (discussing the differences between the prior art and the claims at issue).

³⁴ *Hoover Grp., Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 302 (Fed. Cir. 1995) (“Invalidity based on lack of novelty (often called ‘anticipation’) requires that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee.”).

³⁵ *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007).

concise, and exact terms,”³⁶ as is required of the patent application, nearly any invention can be pieced together from the prior art.³⁷

Furthermore, the process of patent examination and litigation tends to make inventions seem more obvious than they are. As noted above, the law specifically requires the patent applicant to explain the invention in clear and concise terms in the patent application.³⁸ After reading this clear and concise description of the invention, the court or examiner turns to examine the prior art. With the applicant’s clear and concise description in mind, the elements of the claim are more recognizable in the prior art. Therefore, the invention is likely to appear more obvious than it truly would have been to “a person having ordinary skill in the art.”³⁹

Thus, the issue remained after *Graham v. John Deere*: under what circumstances can the prior art be combined, modified, or both, to render a claim obvious? The requirement that a combination be suggested in the prior art was one of the earliest requirements imposed by the courts.⁴⁰ The formulation developed into teaching or suggestion later.⁴¹

The Federal Circuit has been very clear that using the specification to piece together the invention contravenes § 103. The court labeled this unacceptable practice “hindsight.”⁴² An early case addressing this issue is *W.L. Gore & Associates, Inc. v. Garlock, Inc.*⁴³ In this case, the patent concerned the process for making Gore-Tex fabric by rapidly stretching Teflon under specific conditions.⁴⁴ The process resulted in a material that was waterproof yet “breathable.”⁴⁵ The district court found several claims invalid under §103 based on the combination of several references.⁴⁶ The Federal Circuit reversed, noting “the district court lost sight of the principle that there must have been something present in [the] teachings to suggest to one skilled in the art that the claimed invention before the court would have been obvious.”⁴⁷ Additionally, the Federal Circuit explained that the district court fell

³⁶ 35 U.S.C. §112(a) (2012) (“The specification shall contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.”).

³⁷ Howard Markay, *Why Not the Statute?*, 65 J. PAT. OFF. SOC’Y 331, 333–34 (1983).

³⁸ 35 U.S.C. 112(a).

³⁹ *Id.* §103 (2012).

⁴⁰ See, e.g., *In re Andre*, 341 F.2d 304, 308 (C.C.P.A. 1965) (noting that at least one reference must suggest the combination or the selection from and incorporation of features into the other) (internal quotation marks omitted).

⁴¹ ACS Hosp. Sys., Inc v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984) (“Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.”).

⁴² *In re Van Wanderham*, 378 F.2d 981, 986 (C.C.P.A. 1967) (“In applying section 103, the Supreme Court recently cautioned against slipping into hindsight.”) (internal quotation marks omitted).

⁴³ 721 F.2d 1540 (Fed. Cir. 1983).

⁴⁴ *Id.* at 1545.

⁴⁵ *Id.*

⁴⁶ W.L. Gore & Associates, Inc. v. Garlock, Inc., No. C79-2074, 1982 WL 52526, at *1 (N.D. Ohio Nov. 19, 1982), *aff’d in part, rev’d in part*, 721 F.2d 1540 (Fed. Cir. 1983).

⁴⁷ *Id.*

victim to hindsight syndrome when it imbued “one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge.”⁴⁸

To combat this practice, the Federal Circuit developed what became known as the TSM test. One of the earliest statements of this test is in *In re Fine*, where the court noted that “[o]bviousness is tested by what the combined teachings of the references would have suggested to those of ordinary skill in the art.”⁴⁹ The court went on to note that “absent some teaching or suggestion supporting the combination,” obviousness “cannot be established by combining the teachings of the prior art to produce the claimed invention.”⁵⁰ Eventually, this became known as the TSM test.⁵¹ However, the Federal Circuit has never consistently used this formulation. For example, in *Teleflex Inc. v. KSR International Co.*, the Federal Circuit stated the test as follows: “When obviousness is based on the teachings of multiple prior art references, the movant must also establish some ‘suggestion, teaching, or motivation’ that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed.”⁵² However, one paragraph later, the court stated,

The reason, suggestion, or motivation to combine [prior art references] may be found explicitly or implicitly: 1) in the prior art references themselves; 2) in the knowledge of those of ordinary skill in the art that certain references, or disclosures in those references, are of special interest or importance in the field; or 3) from the nature of the problem to be solved, ‘leading inventors to look to references relating to possible solutions to that problem.’⁵³

Thus, the formulation isn’t consistent even in the same opinion. In this author’s opinion, the varying formulations can be distilled to one question: why would one skilled in the art have made this combination, modification, or both?

C. *KSR International Co. v. Teleflex Inc.*

*KSR International Co. v. Teleflex Inc.*⁵⁴ is the appeal from the above referenced Federal Circuit decision. *KSR* involved a patented adjustable pedal with an electronic sensor to detect the pedal’s position in response to the driver depressing the pedal.⁵⁵ The inventor was Engelgau, who assigned the patent to his employer *Teleflex*.⁵⁶ *Teleflex* sued *KSR* for infringement of its patent, U.S. Patent No.

⁴⁸ *Id.* at 1553.

⁴⁹ 837 F.2d 1071, 1075 (Fed. Cir. 1988) (internal quotation marks omitted).

⁵⁰ *Id.*

⁵¹ Emer Simic, *The TSM Test is Dead! Long Live the TSM Test! The Aftermath of KSR, What was all the Fuss About?*, 37 AIPLA Q.J. 227, 231–32 (2009) (“The ‘teaching, suggestion, or motivation’ test asks whether, at the time the invention was created, something would have taught, suggested, or motivated a person of ordinary skill to combine prior art elements to create the claimed invention.”).

⁵² 119 F. App’x 282, 283 (Fed. Cir. 2005), *rev’d*, 550 U.S. 398 (2007).

⁵³ *Id.* (quoting *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665 (Fed. Cir. 2000)).

⁵⁴ 550 U.S. 398 (2007).

⁵⁵ *Id.* at 405.

⁵⁶ *Id.*

6,237,565.⁵⁷ In the claimed invention, the pedal was adjustable to accommodate the differing sizes of drivers who might use the pedal.⁵⁸ The output of the pedal provided an electrical signal that was used to control the throttle in the engine of an automobile.⁵⁹

In prior adjustable pedal designs, part of the adjustment mechanism was fixed to the floorboard of the automobile.⁶⁰ That meant that the pivot point for the adjustable pedal also moved as the pedal was adjusted. The prior art also showed electronic position sensors.⁶¹ However, electronic position sensors at that time had to be mounted at the pivot point of the pedal mechanism to measure the movement of the pedal.⁶² With adjustable pedal designs where the pivot point of the pedal was not fixed to the floorboard, the sensor moved as the pedal was adjusted.⁶³ This required a flexible electrical connection method to the sensor, which added complexity and cost.⁶⁴

However, with Engelgau's invention, the entire pedal mechanism moved about pivot point 24 as the driver pressed the pedal, as shown in Figure 2 of the patent.⁶⁵

⁵⁷ *Id.*

⁵⁸ *Id.* at 398.

⁵⁹ *Id.* at 405.

⁶⁰ *KSR*, 550 U.S. at 398.

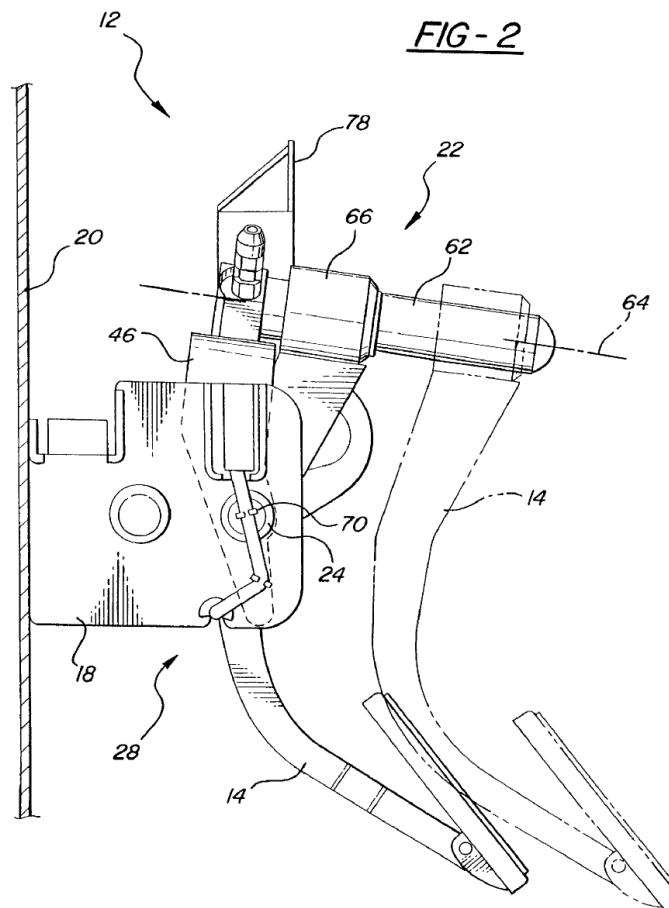
⁶¹ *Id.* at 400.

⁶² *Id.* at 409 (citing U.S. Patent No. 5,241,936 (filed Sept. 9, 1991)).

⁶³ *Id.*

⁶⁴ U.S. Patent No. 6,237,565 col. 1 ll. 48–53 (filed Aug. 22, 2000).

⁶⁵ *Id.* fig. 2.



The electrical transducer 28 was placed at that pivot point, which was at the fixed point where the pedal was mounted to the floorboard.⁶⁶ Therefore, the invention combined had a fixed electrical transducer with an adjustable pedal mechanism.

The prior art included the Asano patent that showed an adjustable pedal mechanism with a fixed pivot point.⁶⁷ The prior art also included electronic sensors.⁶⁸ In the context of a summary judgment motion, the district court combined these two references to rule that the Engelgau patent was invalid because it did not comply with §103.⁶⁹ The Federal Circuit ruled that the district court erred because there was no evidence in the record to show what motivation one skilled in the art might have had to make that combination.⁷⁰ Based on this ruling, the Federal Circuit remanded to the district court for further proceedings.⁷¹

⁶⁶ *Id.* at col. 3 ll. 28–39.

⁶⁷ KSR, 550 U.S. at 398.

⁶⁸ *Id.*

⁶⁹ Teleflex Inc. v. KSR Int'l Co., 298 F. Supp. 2d 581, 596 (E.D. Mich. 2003), vacated, 119 F. App'x 282 (Fed. Cir. 2005), *rev'd*, 550 U.S. 398 (2007), and *aff'd*, 228 F. App'x 988 (Fed. Cir. 2007).

⁷⁰ Teleflex, Inc. v. KSR Int'l Co., 119 F. App'x 282, 288 (Fed. Cir. 2005), *rev'd*, 550 U.S. 398 (2007) (“[T]he district court was required to make specific findings as to a suggestion or motiva-

The Supreme Court granted a writ of certiorari to hear the appeal of the Federal Circuit's decision.⁷² It was speculated that the Supreme Court was concerned that the Federal Circuit was applying the TSM test too rigidly.⁷³

The Supreme Court did not reject the TSM test entirely, but as expected the Court found that the Federal Circuit's analysis was too rigid.⁷⁴ The Federal Circuit noted that Asano was solving a different problem from that addressed by Engelgau and thus did not provide a suggestion to combine the invention of Asano with known electrical sensors.⁷⁵ However, the Supreme Court stated,

Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed A person of ordinary skill is also a person of ordinary creativity, not an automaton.⁷⁶

In summary, in this analysis of the *KSR* decision, the Court subsumed TSM into a simpler standard. That is, there must be a reason in the art at the time of the invention as to why one skilled in the art combined the references.⁷⁷

Another passage from *KSR* illuminates this conceptually.

For over a half century, the Court has held that a ‘patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men.’ This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.⁷⁸

Thus, the point of § 103 is to separate good engineering⁷⁹ from the “aha” moment of invention. Good engineering is applying known principles to solve a technical problem. In other words, if one skilled in the art can take the known principles of the art and predict that a combination or modification will successfully address the problem, it is good engineering and not invention. As the Supreme Court stated in *KSR*, “If a person of ordinary skill in the art can implement a predictable variation, § 103 likely bars its patentability.”⁸⁰ Therefore, obvious combinations and modifications are those where one skilled in the art would have had a reason to predict that the modification or combination would have solved the prob-

tion to attach an electronic control to the support bracket of the Asano assembly.”).

⁷¹ *Id.* at 290.

⁷² *KSR*, 550 U.S. at 415.

⁷³ Stephen G. Kunin & Andrew K. Beverina, *KSR's Effect on Patent Law*, 106 MICH. L. REV. FIRST IMPRESSIONS 50, 51 (2007).

⁷⁴ *KSR*, 550 U.S. at 400.

⁷⁵ *Teleflex*, 119 F. App'x at 288.

⁷⁶ *KSR*, 550 U.S. at 420–21.

⁷⁷ *Id.* at 420.

⁷⁸ *Id.* at 415–16 (quoting Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp., 340 U.S. 147, 152–53 (1950)).

⁷⁹ The term “engineering,” as used here, means the useful application of technology and not to any professional status or field of endeavor.

⁸⁰ *KSR*, 550 U.S. at 417.

lem. The *KSR* decision not only summarizes a century or more of jurisprudence on this key issue of patentability, but also points to a clearer statutory formulation of this concept.

III. Proposed Text of 35 USC § 103

In addition to illuminating the intellectual principles of § 103, the *Graham* and *KSR* cases also illustrate the only two modes of applying § 103: modifying the prior art and combining the prior art.

In *Graham*, the prior art showed a hinge in a different position than that of the claimed invention.⁸¹ The court stated that “[c]ertainly a person having ordinary skill in the prior art, given the fact that the flex in the shank could be utilized more effectively if allowed to run the entire length of the shank, would immediately see that the thing to do was what Graham did, i.e., invert the shank and the hinge plate.”⁸² Therefore, the court in *Graham* ruled that it was obvious to modify the prior art, as well as to combine the prior *Graham* and *Glencoe* art.⁸³ In *KSR*, the Supreme Court ruled that it was obvious to combine the prior art pedal having a fixed pivot point with known electronic sensors.⁸⁴

In accordance with the above-described jurisprudence, the author proposes that § 103 be amended to read:

35 U.S.C. § 103 Conditions for patentability; non-obvious subject matter.

A patent may not be obtained although the invention is not identically disclosed or described as set forth in section 102 of this title, if the subject matter sought to be patented (i) is a modification, combination, or both of the prior art in a manner known in the art at the time the invention was made; (ii) provided that there was a reason in the art at the time the invention was made for one skilled in the art to which the subject matter pertains to make such modification, combination, or both; and (iii) provided that such subject matter sought to be patented produces results that were no more than would have been expected by one skilled in the art to which the subject matter pertains of such modification, combination, or both at the time the invention was made. Patentability shall not be negated by the manner in which the invention was made.

The following breaks down the principle sections of this proposed revision of § 103.

“A patent may not be obtained although the invention is not identically disclosed or described as set forth in section 102 of this title”

This is not changed from the current § 103 and maintains the emphasis that § 102 covers the situation where every element of the invention is shown either explicitly or inherently,⁸⁵ and that § 103 addresses the situation where not every ele-

⁸¹ *Graham v. John Deere Co.*, 383 U.S. 1, 22–26 (1966).

⁸² *Id.* at 25.

⁸³ *Id.* at 25–26.

⁸⁴ *KSR*, 550 U.S. at 427.

⁸⁵ See, e.g., *Verdegaal Bros. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or

ment is shown in one reference,⁸⁶ but the claimed invention does not rise to the level of a patentable invention.

Section (i) “[I]f the subject matter sought to be patented (i) is a modification, combination, or both of the prior art in a manner known in the art at the time the invention was made . . .”

As noted in KSR, a claim is not patentable if it was a combination of the prior art known at the time of the invention:

The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.⁸⁷

In addition, modifications that were known in the art are similarly unpatentable: “[E]ven though applicant’s modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art.”⁸⁸

Section (i) establishes the base line. For § 103 to be applicable, it must involve a combination of prior art, a modification of prior art, or both in a manner known at the time of the invention.

Section (ii) “[P]rovided that there was a reason in the art at the time the invention was made for one skilled in the art to which the subject matter pertains to make such modification, combination, or both . . .”

This requirement is taken from *KSR*:

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

....

.... Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.⁸⁹

⁸⁶ inherently described, in a single prior art reference.”).

⁸⁶ See, e.g., Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1571 (Fed. Cir. 1991) clarified on denial of reconsideration, No. 89-1541, 1991 WL 523489 (Fed. Cir. Apr. 30, 1991), overruled by Abbott Labs. v. Sandoz, Inc., 566 F.3d 1282 (Fed. Cir. 2009) (“If it is necessary to reach beyond the boundaries of a single reference to provide missing disclosure of the claimed invention, the proper ground is not § 102 anticipation, but § 103 obviousness.”).

⁸⁷ *KSR*, 550 U.S. at 420.

⁸⁸ *In re Aller*, 220 F.2d 454, 456 (C.C.P.A. 1955).

⁸⁹ *KSR*, 550 U.S. at 418, 420.

The *KSR* decision was directed to the application of § 103 to a combination of prior art.⁹⁰ However, the requirement that there be some reason in the prior art to modify a prior art reference is certainly as appropriate, if not more so, for applications of § 103 based on modifications of the prior art.

Section (iii) “[P]rovided that such subject matter sought to be patented produces results that were no more than would have been expected of such modification, combination, or both by one skilled in the art to which the subject matter pertains at the time the invention was made.”

This is the line that demarcates invention from good engineering. “In other words, the improvement is the work of the skillful [sic] mechanic, not that of [an] inventor.”⁹¹ A lengthy quotation from *KSR* illustrates this portion of the proposed § 103:

In *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, . . . the Court elaborated on this approach. The subject matter of the patent before the Court was a device combining two pre-existing elements: a radiant-heat burner and a paving machine. The device, the Court concluded, did not create some new synergy: The radiant-heat burner functioned just as a burner was expected to function; and the paving machine did the same. The two in combination did no more than they would in separate, sequential operation. In those circumstances, while the combination of old elements performed a useful function, it added nothing to the nature and quality of the radiant-heat burner already patented, and the patent failed under §103.

Finally, in *Sakraida v. AG Pro, Inc.*, . . . the Court derived from the precedents the conclusion that when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.

The principles underlying these cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida and Anderson’s-Black Rock* are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.⁹²

Thus, Sections (ii) and (iii) define the line that separates good engineering from invention. If one skilled in the art at the time had a reason to modify, combine known technology, or both and had reason to believe that the modification, combination, or both of that known technology would work as intended, then the invention is not patentable. That is good engineering, not invention.

On the other hand, if one skilled in the art at the time of the invention had no reason to make the modification, combination, or both or had no reason to believe

⁹⁰ *Id.* at 422.

⁹¹ *Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1850).

⁹² *KSR*, 550 U.S. at 416–17 (emphasis added) (citations omitted) (internal quotation marks omitted).

that such a modification, combination, or both would work, then the invention is patentable.⁹³ An inventor sees what others cannot. It is the function of the patent system to provide an incentive for the inventor to do the hard work of converting that vision into a “useful”⁹⁴ product; “and thereby [add] the fuel of *interest* to the *fire* of genius, in the discovery and production of new and useful things.”⁹⁵

The courts, particularly in the *KSR* decision, use the terms “predictable” and “expectation” as opposite sides of the same coin. Section (iii) of the proposed statute formulates the test as “no more than would have been expected.”⁹⁶ This formulation provides a more direct logical connection to the evidence that is needed to adduce this question. Put in the form of a question, why would one skilled in the art have expected the modification, combination, or both of the prior art to produce the results obtained by the subject matter patented or sought to be patented? If there is no reason for such an expectation, the claimed invention is not unpatentable under proposed § 103.

With this formulation, one challenging the patentability of a claim under proposed

§ 103 would be required to demonstrate some reason in the prior art—some teaching, suggestion, or otherwise—that the modification, combination, or both would work as intended by the claim. Thus, the patent examiner or trier of fact would be required to determine:

- what teaching, suggestion, motivation, or other reason would have caused a person skilled in the art at the time to make the modification, combination, or both; and
- what teaching, suggestion, motivation or other reason would have given that person skilled in the art at the time the belief that the claimed invention would work?

If there is no evidence in the prior art to answer either of these questions, the claimed invention is patentable under the proposed revision of § 103. In this manner, the proposed revision of § 103 is codifying and clarifying the tests for the current § 103 that courts have promulgated over the last sixty years.

A. Specific Criteria of Expectability

In addition, it may be useful to delineate some specific, but not exclusive evidence of instances when the success of the invention would not have been expected. This would include the secondary indicia from *Graham* and other well-established

⁹³ The claimed invention must still satisfy other requirements for patentability.

⁹⁴ 35 U.S.C. §101 generally requires that a claimed invention be “useful” in order to qualify for patent protection.

⁹⁵ *Lecture on Discoveries and Inventions*, ABRAHAM LINCOLN ONLINE, <http://www.abrahmlincolnonline.org/lincoln/speeches/discoveries.htm> (last visited January 20, 2015).

⁹⁶ See *supra* p.171.

principles. Therefore, the addition of a subsection to § 103 may be helpful. An example is as follows:

Evidence that one skilled in the art to which the subject matter pertains would have had no reason to make a combination, modification, or both of the prior art, or not have expected a combination, modification, or both of the prior art to produce the results of the subject matter sought to be patented include:

The operational principles of the modification or the combined prior art are incompatible;

Commercial success of the subject matter sought to be patented;

A long-felt but unfulfilled need in the marketplace for the subject matter sought to be patented; and

The modification or prior art pertains to a field that one skilled in the art to which the subject matter pertains at the time the invention was made would not have considered for the subject matter sought to be patented.

The evidence under Section (d) overlaps with the requirement of Section (ii) but specifically addresses the question of when two pieces of prior art are from such different fields that one skilled in the art of one field would not look to another field for answers to their technical problem. Therefore, it is an appropriate clarification of the requirements of proposed § 103.

B. Example Application of the Proposed Statute

An example may help clarify the operation of proposed § 103. Claim 1 of the Engelgau patent at issue in *KSR* reads:

An adjustable pedal assembly for a vehicle comprising;
[A] a support (18) for mounting to a vehicle structure;
[B] an adjustable pedal assembly (22) having a guide member (62) rotatably supported by said support (18) for pivotal movement about a pivot axis (26); and
[C] a pedal arm (14) supported on said guide member (62) for rectilinear movement in fore and aft directions relative to said support (18), said guide member (62) and said pivot axis (26) between various adjusted positions;
[D1] an electronic control (28) supported on said support (18) and responsive to pivotal movement of said pedal arm (14) and said guide member (62) about said pivot axis (26),
[D2] said electronic control (28) being fixed relative to said support (18) such that said pedal arm (14) moves in fore and aft directions with respect to said electronic control (28), said electronic control (28) being responsive to pivotal movement of said guide member (62) about said pivot axis (26) for providing a signal (32) that corresponds to pedal arm (14) position as said pedal arm (14) pivots said guide member (62) about said pivot axis (26).⁹⁷

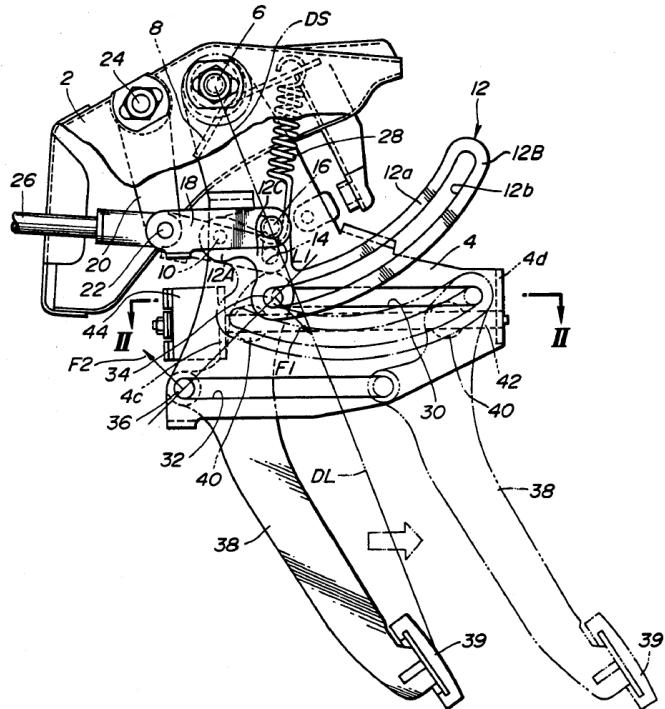
The first step, as stated by the Court in *Graham*, is to ascertain the content of the prior art. Of course, the *KSR* Court has done this for us. For our purposes, this analysis will focus on the Asano patent and the Smith patent.

⁹⁷ U.S. Patent No. 6,237,565 col. 5 ll. 25–38, col. 6 ll. 1–9 (filed Aug. 22, 2000).

Section (i) “[I]f the subject matter sought to be patented is a modification, combination, or both of the prior art in a manner known in the art at the time the invention was made . . .”

This section requires that it be determined if the elements of the claim are included in the prior art. First, look to Figure 1 of the Asano patent.⁹⁸

⁹⁸ U.S. Patent No. 5,010,782 fig. 1 (filed July 28, 1989).

FIG.1

Bracket 2 of the Asano patent meets element [A] of Engelgau claim 1 because it provides support for mounting the assembly of Figure 1.⁹⁹ Lever 4 provides a guide member that rotates about pivot pin 6 and supports the rest of the assembly, thus meeting element [B] of claim 1 of Englegau.¹⁰⁰ Pedal arm 38 meets the limitations of element [C] of claim 1. Asano does not show elements [D] and [E] of the claim.

⁹⁹ See *id.* at col. 3 ll. 35–36.

¹⁰⁰ *Id.* at col. 3 ll. 36–39.

One of the electronic sensor patents cited in the *KSR* decision is Smith.¹⁰¹ Figure 1 of Smith is shown below:¹⁰²

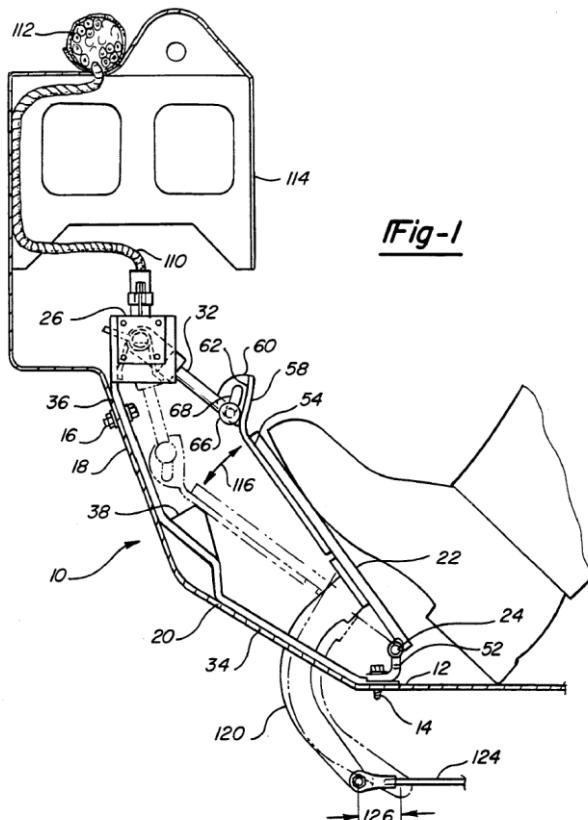


Fig-1

Smith includes a rotary potentiometer 28 (not shown in this figure) housed in housing 26.¹⁰³ A potentiometer is a type of electronic control.¹⁰⁴ The potentiometer is connected to the vehicles control systems via cable 110.¹⁰⁵ The potentiometer 28 is mounted to the pivot axis, which is provided by rotary input shaft 70 (not shown in this figure).¹⁰⁶ Therefore, potentiometer 28 meets element [D1] of claim 1 of Engelgau. The housing portion 26 is mounted at the upper end 36 of base bracket 20 and is thus fixed to the support of bracket 20.¹⁰⁷ Therefore, Smith shows element [D2] of claim 1.

¹⁰¹ U.S. Patent No. 5,063,811 (filed July 9, 1990).

¹⁰² *Id.* at fig. 1.

¹⁰³ *Id.* at col. 4 ll. 49–50.

¹⁰⁴ *Id.* at col. 3 ll. 16–17.

¹⁰⁵ *Id.* at col. 4 ll. 52–55.

¹⁰⁶ *Id.* at col. 3 ll. 39–50.

¹⁰⁷ ‘811 Patent at fig. 1.

In accordance with Section (i), every element of the subject matter sought to be patented is shown in the combined references of Asano and Smith. Thus, Section (i) of the proposed statute is met.

Section (ii) “[P]rovided that there was a reason in the art at the time the invention was made for one skilled in the art to which the subject matter pertains to make such modification, combination, or both . . .”

Quoting from the Smith patent:

Specifically, the wiring to the electrical components must be secure from the possibility of chafing which will eventually result in electrical failure. Thus, the pedal assemblies must not precipitate any motion in the connecting wires themselves, such as shown in the electronic pedal assembly of U.S. Pat. No. 4,883,037. Further, one must take care that the electrical components of the assembly are placed outside of the hostile environment zone lying between the operator's foot or the accelerator pedal and the floor pan of the vehicle. This zone is subjected to the substances the operator may get on his or her shoes such as gas, oil, salt, dirt, acid and the like.¹⁰⁸

Smith specifically states that the pedal assemblies “must not precipitate motion of the connecting wires themselves.”¹⁰⁹ Thus, the prior art teaches that it is desirable to have the sensor and wiring to be stationary and not move with an adjustable pedal assembly. This provides a clear reason for one skilled in the art to make this combination. Thus, Section (ii) of the proposed statute is met.

Section (iii) “[P]rovided that such subject matter sought to be patented produces results that were no more than would have been expected of such modification, combination, or both by one skilled in the art to which the subject matter pertains at the time the invention was made.”

There is no reason that the pivoting mechanism of Smith would not work at the pivot of the pedal assembly of Asano. In addition, there is no reason that the pivoting mechanism would operate in a different manner when incorporated into the pedal mechanism of Asano than when used as described in the Smith patent. As such, Section (iii) of the proposed statute is met. Therefore, all three section of proposed § 103 are present with regard to claim 1 of the Engelgau patent. Thus, just as it was determined in *KSR*, claim 1 of the Engelgau patent is unpatentable under proposed § 103.

IV. Summary and Conclusion

To summarize, the proposed new version of § 103 states that an invention is not patentable if,

- 1) The claimed invention is a combination and/or modification of the prior art;

¹⁰⁸ *Id.* at col. 1 ll. 34–45.

¹⁰⁹ *Id.* at col. 1 ll. 35–40.

- 2) There was some reason at the time the claimed invention was made to make such a modification, combination, or both; and
- 3) The combination, modification, or both produced nothing more than results that could be expected given the state of the art at the time the claimed invention was made.

The above statement and example demonstrates one of the values of the proposed § 103. Without being mechanical, it provides a clear, three-step process by which an examiner or court can determine if § 103 applies.

The questions posed by the above summary will often be quite challenging. Determining what the expectation of one skilled in the art many years ago will always be a significant proof problem. Nonetheless, rather than conducting an obtuse inquiry into whether a claimed invention would have been obvious to one skilled in the art at the time of the invention¹¹⁰ or before the effective filing date,¹¹¹ it focuses the decision maker's inquiry into the real question at hand: why would one skilled in the art have made the modification, combination, or both, and why would they have thought it would achieve what the claimed invention achieved. That is, whether the claimed invention is a true invention or just good engineering.

A. Promotes Patent Harmonization

It is hoped that other benefits will flow from a statute that more clearly defines obviousness. Many hope for further harmonization of patent systems internationally. A clear statement of this critical line between invention and good engineering should prove an appealing formulation in foreign jurisdictions. It is also hoped that a formulation that provides a clear process for making this determination may prove attractive in these jurisdictions.

One of the stumbling blocks to increased harmonization of patent systems is the differing examination standard between foreign jurisdictions.¹¹² The ambiguity of the meaning of the terms obvious and inventive step provide a very wide scope for differing opinions as to which claimed inventions do or do not meet these standards. If the test of proposed § 103 is widely adopted, a consistent formulation cannot help but narrow these differences.

In addition, the focus of proposed § 103 is on the expectations of one skilled in the art at the time of the invention. These expectations are determined by the contents of the prior art. That is, the focus is on the technology available at the time of the invention. It is suggested that the scope of disagreement as to the contents of

¹¹⁰ The pre-AIA standard. 35 U.S.C. § 103 (2006).

¹¹¹ The post-AIA standard. 35 U.S.C. § 103 (2012).

¹¹² See Stephen G. Kunin & Philippe J.C. Signore, *A Comparative Analysis of the Inventive Step Standard in the European and Japanese Patent Offices from a US Perspective*, IP LITIGATOR, Jan.-Feb. 2008, at 15 (comparing the laws of nonobviousness as applied by the European Patent Office, the Japan Patent Office, and the United States Patent and Trademark Office).

the applicable technology, while certainly not zero, is much narrower than the scope for disagreement concerning whether something is or is not obvious.

Therefore, proposed §103 will have a natural tendency to narrow the difference in examination standards between jurisdictions. This, of course, will not magically lead to patent harmonization, nor to the ultimate goal of harmonization: a worldwide patent system where one examination and approval of a patent application would provide protection in many countries. Problems involving language and the appropriate subject matter for patenting are less tractable. For example, jurisdictions outside of the United States are far less amenable to patenting of software, medical products, and medical procedures than is the United States.¹¹³ These and other problems remain. Diplomats will not be put out of business in the foreseeable future. However, more clarity in standards for patentability may bring us a little closer to harmonization of those standards and may lead to international cooperation. This may then lead to international patent protection at much lower costs than is currently possible.

B. Efficiency and Clarity

On a more abstract level, when Congress adopted the term “nonobviousness” as a standard for patentability, it essentially shirked its responsibility to define the law as clearly as possible. As a result, the courts have had to wrestle with this issue for sixty years. Courts decide cases. The legislature sets legal policy. It is long past time for Congress to do so on this issue.

¹¹³ See, e.g., European Patent Convention, art. 53(c), Oct. 5, 1973, 1065 U.N.T.S 199 (stating that methods for treatment by surgery or therapy and diagnostic methods are not patentable); Daehwan Koo, *Patent and Copyright Protection of Computer Programs*, 2 INTELL. PROP. Q. 172, 99–118 (2002) (outlining the statutory and case law development regarding the patentability of software in Europe and Japan).

