

COMMENTS

IMPROVING PATENT QUALITY THROUGH IDENTIFICATION OF RELEVANT PRIOR ART: APPROACHES TO INCREASE INFORMATION FLOW TO THE PATENT OFFICE

by
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There is rising concern about the issuance of poor quality patents by the U.S. Patent and Trademark Office; i.e., patents which are overbroad, or directed to old or obvious inventions. These patents can be particularly vulnerable to exploitation by so-called “patent trolls.” An important contributor to the issuance of quality patents is identification of the most relevant prior art during the process of examination. This can be difficult in emerging fields that do not yet have a large body of published work, as well as in established fields, where the amount of published prior art may be overwhelming. This Comment reviews recent patent system reform proposals that address this problem. In particular, the author discusses the use of a peer review model, either in the form of community review or a “traditional” peer review system, to ensure that the most relevant prior art is considered during the patent examination process.

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I. INTRODUCTION

Concern about the quality of patents issued by the United States Patent and Trademark Office (USPTO) has been rising in recent years. Critics have frequently cited several patents of dubious quality, including a crustless peanut butter and jelly sandwich, a method of swinging on a swing, and a method of exercising a cat.¹ Many other patents that seem of doubtful value are easily found.² While many of these patents are clearly obvious or not novel, neither are they likely to be of particular value. Instead, the real “problem patents” are a small number of poor quality but economically important patents. It is these that are particularly vulnerable to abuse by patent trolls and contribute to the widespread sense that the U.S. patent system is undergoing a breakdown.

This Comment will focus on the necessity for having the most relevant prior art available to the USPTO during examination to prevent the issuance of poor quality overbroad, non-novel, or obvious patents. I discuss possible mechanisms to provide relevant prior art to the USPTO and I propose a model

¹ U.S. Patent Nos. 6,004,596 (filed Dec. 8, 1997), 6,368,227 (filed Nov. 17, 2000), and 5,443,036 (filed Nov. 2, 1993), respectively.

² See, e.g., Crazy Patents, <http://www.freepatentsonline.com/crazy.html>; Crazy Patents.com, <http://www.crazypatents.com>. For example, a method of playing a bowling game (U.S. Patent No. 6,142,880 (filed Nov. 7, 2000)) and an animal toy that is essentially a stick (U.S. Patent No. 6,360,693 (filed Mar. 26, 2002)).

based on traditional academic peer review. Part II of this Comment discusses the problem of exploitation of low quality patents by patent trolls, which is currently driving much of the attention to the need for patent reform. Part III describes the attributes of patent quality and methods for measuring the quality of patents. Some shortcomings that currently exist in identification of prior art during examination are discussed in Part IV. Finally, Part V examines ways to improve patent quality, including past statutory reform, present reform proposals from both the legislative and academic arenas, and new proposals for peer review systems that have the potential to contribute to the knowledge base of patent examiners and improve patent quality.

II. PATENT TROLLS AND PATENT QUALITY

The rise of patent trolls is currently much discussed in the popular media, academic publications, and the halls of Congress.³ The term patent troll has been attributed to Peter Detkin when he was assistant counsel at Intel. Detkin defined a patent troll as “somebody who tries to make a lot of money off a patent that they are not practicing and have no intention of practicing and in most cases never practiced.”⁴ Instead of commercializing their inventions, patent trolls generate income through aggressive licensing and litigation of their patent portfolios.

The U.S. patent system is based on the constitutional mandate to “promote the progress of . . . useful arts, by securing for limited times to . . . inventors the exclusive right to their . . . discoveries.”⁵ The patent system developed with the quid pro quo of a grant of exclusive rights for a limited period in exchange for the addition of knowledge to the public record. This provides an incentive for innovation, and in return, a benefit to the public from that innovation. However, there is no requirement that in exchange for the patent grant an inventor must “manufacture, sell, or market their writings or ideas.”⁶ Therefore, the idea that patent trolls are abusing the patent system simply by exploiting patents that they do not practice is an erroneous one. Instead, the real damage done by patent trolls is through the diversion of investment from research and

³ See, e.g., Nicholas Varchaver, *Who's Afraid of Nathan Myhrvold?*, FORTUNE, July 10, 2006, available at http://money.cnn.com/magazines/fortune/fortune_archive/2006/07/10/8380798/index.htm; Steve Seidenberg, *Troll Control*, A.B.A. J., Sept. 2006, at 50; Terrence P. McMahon et al., *Who Is a Troll? Not a Simple Answer*, 7 SEDONA CONF. J. 159 (2006); Katherine E. White, *Preserving the Patent Process to Incentivize Innovation in Global Economy*, 2006 SYRACUSE SCI. TECH. L. REP. 1; *Patent Trolls: Fact or Fiction? Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary*, 109th Cong. (2006), available at <http://judiciary.house.gov/media/pdfs/printers/109th/28201.pdf> [hereinafter *Patent Trolls Hearing*].

⁴ Brenda Sandburg, *You May Not Have a Choice. Trolling for Dollars*, RECORDER, July 30, 2001, available at <http://www.phonetel.com/pdfs/LWTrolls.pdf>. Ironically, Detkin now works for Intellectual Ventures, which seeks to accumulate patents to license to other companies, and now describes patent trolls as entities that own one or a few patents and seek nuisance value settlements. Seidenberg, *supra* note 3, at 53.

⁵ U.S. CONST. art. I, § 8, cl. 8.

⁶ White, *supra* note 2, at 3.

development (i.e. innovation) to potentially unwarranted licensing fees or litigation.⁷

Although the term patent troll is frequently used pejoratively, there are also those who contend that non-manufacturer patent owners play an important role in the patent system.⁸ For example, patent “dealers” protect the rights of individual inventors or small entities by providing the capital necessary to create a credible threat of litigation, therefore providing leverage to negotiate licensing agreements or pursue litigation.⁹ This protects the patent system by preventing free-riding by large entities and maintaining the value of patent protection. In addition, patent dealers manage the risk and cost of obtaining patents for those who cannot afford the expense of patent prosecution or litigation.¹⁰ Finally, patent dealers or marketers create liquidity in the market by facilitating the matching of patent owners with licensees who will commercialize an invention.¹¹ As a result of these activities, the public benefits through an increased incentive to invent, because small inventors can easily benefit from their inventions¹² and large entities may be encouraged to invent around a patent, rather than risk litigation by a patent dealer.¹³ These benefits suggest that patent “trolls” or “dealers” are not harmful to the patent system per se. Rather, only some of their activities are problematic.

The recent rise of patent trolls intersects with, and has been fueled by, the issuance of poor quality patents from an overburdened USPTO. Frequently, these poor quality patents contain overly broad claims, which are used offensively by patent trolls to obtain licenses or bring infringement lawsuits.¹⁴ The exploitation of low quality patents by patent trolls highlights the damage that can be done when poor quality patents are issued and survive. By asserting overbroad, obvious, or non-novel patents (i.e. poor quality patents), patent trolls often force alleged infringers to choose between paying licensing fees for a patent that they believe is invalid or facing costly and protracted litigation. When this happens, our system of strong protection of patent rights results in failure of the constitutional mandate to “promote the progress of . . . useful arts”¹⁵ and instead hampers innovation. Rather than weaken the protection that

⁷ Mary Rose Roberts, *Are R&D Resources Being Diverted to Fight Patent Trolls?*, MC PRESS ONLINE, Apr. 3, 2006, available at <http://www.mcpressonline.com/mc?13@167.EHf5dAruES0.3@.6b365974>; *Patent Trolls Hearing*, *supra* note 3, at 1 (statement of Rep. Smith, Member, House Comm. on the Judiciary).

⁸ Instead of “trolls,” patent owners who do not practice their invention are referred to as “patent marketers” or as “patent dealers.” See White, *supra* note 3, at 5; James F. McDonough III, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 201 (2006).

⁹ White, *supra* note 3, at 5; McDonough, *supra* note 8, at 212.

¹⁰ White, *supra* note 3, at 5; McDonough, *supra* note 8, at 215.

¹¹ McDonough, *supra* note 8, at 214.

¹² *Id.* at 217.

¹³ *Id.* at 223.

¹⁴ Jeremiah Chan & Matthew Fawcett, *Footsteps of the Patent Troll*, 10 INTELL. PROP. L. BULL. 1, 4 (2005).

¹⁵ U.S. CONST. art. I, § 8, cl. 8.

patents provide,¹⁶ steps should be taken to improve the quality of patents issued by the USPTO. This will reduce the ability of patent trolls to exploit poor quality patents and slow innovation. The remainder of this Comment will discuss patent quality and potential improvements to the patent system to ensure that relevant prior art is available to the USPTO during its patentability decision process.

III. PATENT QUALITY

As discussed in Part II, the problem of patent trolls is driven largely by the issuance of overbroad and poor-quality patents by the USPTO. In order to improve patent quality, we must first define what we mean by patent quality and examine ways to evaluate whether a patent is of good quality.

A. *Defining Patent Quality*

Patent quality can be approached from at least three different perspectives. One way of measuring patent quality is simply how well the patent meets the statutory requirements: patentable subject matter,¹⁷ utility,¹⁸ novelty,¹⁹ non-obviousness,²⁰ and adequate written description and enablement.²¹ A patent on a known, obvious, or inadequately described invention does not achieve the quid pro quo that is at the heart of the patent system. Instead, the grant of a patent that is not statutorily warranted gives the patent holder market power to raise prices or threaten litigation without providing any true benefit to the public.²²

Patent quality can also be assessed from the standpoint of certainty as to the validity and scope of the patent claims.²³ That is, for a good quality patent “the specific features . . . should be clearly defined, and the claims should be likely to be upheld in subsequent legal proceedings.”²⁴ Issuance of patents of uncertain validity may slow innovation by causing the patent holder to underinvest in the field or by discouraging others from investing in research in the

¹⁶ For example, some parties have discussed replacing the presumption of validity for issued patents with a standard requiring only a preponderance of the evidence (rather than clear and convincing evidence) to invalidate claims. See ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT 193 (2004); Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1529 (2001).

¹⁷ 35 U.S.C. § 101 (2000).

¹⁸ *Id.*

¹⁹ 35 U.S.C. § 102 (2000).

²⁰ 35 U.S.C. § 103 (2000).

²¹ 35 U.S.C. § 112 (2000).

²² NAT'L RESEARCH COUNCIL, A PATENT SYSTEM FOR THE 21ST CENTURY 46 (Stephen A. Merrill et al. eds., 2004) [hereinafter NRC REPORT].

²³ Bronwyn H. Hall & Dietmar Harhoff, *Post-Grant Reviews in the U.S. Patent System—Design Choices and Expected Impact*, 19 BERKELEY TECH. L.J. 989, 991 (2004).

²⁴ *Id.*

area for fear of infringement.²⁵ For example, Robert Blackburn of Chiron Corporation testified before the Federal Trade Commission that “there certainly are areas of research that Chiron would have done, or would have pursued a little bit longer” if not for the existence of third party patents of uncertain validity.²⁶ Patents of questionable validity may also result in unnecessary licensing if research does proceed, particularly for small firms that are less able to bear the costs of litigation.²⁷ Finally, uncertainty over patent validity may lead to costly and lengthy litigation, which may ultimately require millions of dollars to resolve.²⁸

A third way of looking at patent quality is from an economic perspective. For example, a desirable patent may be one that covers an invention that would not have been made without the incentive of patent protection.²⁹ A similar facet of this idea is that a quality patent is one that allows the commercialization of a valuable invention.³⁰ Despite this concept of patent quality, most patents are never litigated or licensed,³¹ suggesting that few patented inventions are ever commercialized. However, many patents that are not commercially valuable are presumably of good quality from the standpoints of the statutory criteria and certainty. Therefore, this measure of patent quality is perhaps more a subjective indicator of whether something is a desirable *invention*, rather than a reflection of the quality of the patent itself.

B. *Measuring Patent Quality*

Just as there are several interpretations of what “patent quality” means, there are also multiple ways to approach an objective measurement of patent quality. Two primary ways of quantifying the quality of issued patents are: (1) USPTO internal quality assessment audits and (2) the rate of patent invalidity determinations in patent litigation. According to both of these measurements, patent quality may be increasing slightly, but still remains problematic.

1. *USPTO Quality Assessment*

The USPTO makes an annual determination of error rate in randomly selected issued patents. An error is recorded when at least one claim in the allowed application would be held invalid in a court of law.³² By this

²⁵ *Id.*; FED. TRADE COMM’N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY ch. 5, at 2 (2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf> [hereinafter FTC REPORT].

²⁶ *Business Perspectives on Patents: Biotech and Pharmaceuticals: Hearing Before the Federal Trade Comm’n* 309 (Feb. 26, 2002) (statement of Robert Blackburn, Vice President, Chiron Corp.), available at <http://www.ftc.gov/opp/intellect/020226trans.pdf>.

²⁷ FTC REPORT, *supra* note 25, ch.5, at 2.

²⁸ *Id.* ch. 5 at 3, n.11.

²⁹ Hall & Harhoff, *supra* note 23, at 991.

³⁰ *Id.*

³¹ Lemley, *supra* note 16, at 1497.

³² U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2003, § 4.2.1, available at <http://www.uspto.gov/web/offices/com/annual/2003/index.html>.

measurement, the USPTO error rate has declined, from 6.6% in fiscal year 2000,³³ to 4.6% in fiscal year 2005.³⁴ Although the target error rate of 4.0% was not met from 2002–2004, in fiscal year 2006, the error rate decreased to 3.5%.³⁵ While this error rate seems low, 173,771 patents were issued in 2006,³⁶ meaning that 6081 of these had at least one claim that would be considered invalid in a court of law.

2. *Patent Invalidation in Litigation*

The rate at which patents are held invalid in litigation is another quantitative measure of patent quality. A study of 299 patents litigated to a final validity decision during 1989–1996³⁷ found that 46% of the decisions found the patent at issue invalid.³⁸ More recently, the University of Houston Law Center has been collecting data about patent law decisions, beginning January 1, 2000.³⁹ From 2000–2004 a total of 934 validity decisions are reported, with 400 of these (42.8%) resulting in a finding of invalidity.⁴⁰ In 2005, 64 of 181 validity decisions (35.5%) found the patent at issue invalid.⁴¹ Taken together, these data suggest that findings of patent invalidity during litigation may be decreasing slightly. However, these statistics should be interpreted with caution, as it may be that cases are selected for litigation because of uncertainty as to patent validity, while patents that are obviously valid or invalid are settled.⁴²

These datasets indicate that prior art is a major contributor to findings of invalidity, suggesting that prior art is either not being discovered during examination or is not being correctly interpreted by the examiner. For example, of the patents found invalid in the 1989–1996 dataset, the majority (51.6%) were on grounds related to prior art (either section 102 prior art or section 103 obviousness grounds).⁴³ From 2000–2004, 38.4% of invalidity decisions were

³³ *Id.*

³⁴ U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2005, § 4.2.1, *available at* <http://www.uspto.gov/web/offices/com/annual/2005/index.html>.

³⁵ U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2006, at 19, *available at* <http://www.uspto.gov/web/offices/com/annual/2006/2006annualreport.pdf> [hereinafter 2006 PERFORMANCE REPORT].

³⁶ U.S. Patent & Trademark Office, U.S. Patent Activity, Calendar Years 1790 to the Present, http://www.uspto.gov/go/taf/h_counts.htm [hereinafter U.S. Patent Activity].

³⁷ John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 194 (1998).

³⁸ *Id.* at 205.

³⁹ Univ. of Houston Law Ctr., Patstats: U.S. Patent Litigation Statistics (Jeffrey Johnson et al., eds.), www.patstats.org.

⁴⁰ Univ. of Houston Law Ctr., Decisions for 2000–2004, [http://www.patstats.org/Composite%20Table%20\(2000-2004\).html](http://www.patstats.org/Composite%20Table%20(2000-2004).html) [hereinafter Decisions for 2000–2004].

⁴¹ Univ. of Houston Law Ctr., Decisions for 2005, <http://www.patstats.org/2005.html> [hereinafter Decisions for 2005].

⁴² Allison & Lemley, *supra* note 37, at 207 n.55.

⁴³ *Id.* at 208.

based on prior art related grounds⁴⁴ and in 2005, this number was 37.5%.⁴⁵ While these data suggest that prior art issues may be subsiding, they remain a substantial contributor to the high rate of findings of patent invalidity in litigation.

IV. SHORTCOMINGS IN PRIOR ART IDENTIFICATION

As I discussed in Part III, prior art is frequently grounds for finding invalidity of an issued patent during litigation. In light of this, it seems likely that in many cases not all relevant prior art is being considered during examination of a patent application. Therefore, it is important to consider potential causes of the apparent shortcomings in prior art searching during the patent examination process and their contribution to patent quality.

A. *Overburdened Patent Examiners*

A clear determinant of patent quality is the adequacy of examination that a patent application receives from the USPTO. There has been a dramatic increase in the number of patent applications received by the USPTO in the last two decades. In 1985, the USPTO received 117,006 utility applications, while in 1995, 212,377 utility applications were received, and in 2005, 390,733 utility applications were filed.⁴⁶ This more than tripling in the rate of utility application filings has resulted in overburdened examiners who have little time to devote to each patent application. The amount of time that an examiner devotes to the entire process of patent examination is uncertain, but estimates range from 8–30 hours⁴⁷ and there is widespread agreement that this amount of time is insufficient for adequate examination.⁴⁸ As a result of these pressures, examiners do not have time for an adequate search of the prior art.⁴⁹ In light of this, it is not surprising that patent quality is suffering. Further, there have been numerous recommendations that the USPTO should be allowed to address this flood of patents by hiring more qualified examiners, and creating working conditions that promote their retention.⁵⁰

B. *USPTO Focus on Patent Prior Art*

Another contributor to low quality patents may be the focus of the USPTO on patent databases in searching for prior art during the examination process. It appears that examiners give the most weight to the U.S. patent database in searching for prior art, treating it as “a sort of filing cabinet of all human

⁴⁴ Calculated from 2000–2004 dataset, Decisions for 2000–2004, *supra* note 40.

⁴⁵ Calculated from 2005 dataset, Decisions for 2005, *supra* note 41.

⁴⁶ U.S. Patent Activity, *supra* note 36.

⁴⁷ NRC REPORT, *supra* note 22, at 51 n.31; FTC REPORT, *supra* note 25, ch. 5, at 5.

⁴⁸ FTC REPORT, *supra* note 25, ch. 5, at 5 n.27.

⁴⁹ *Id.*

⁵⁰ NRC REPORT, *supra* note 22, at 104–05, FTC REPORT, *supra* note 25, Executive Summary at 12.

knowledge.”⁵¹ In the software field, for example, three out of five (i.e., 60%) cited prior art references in issued patents were from the patent literature, meaning only 40% of cited prior art was from non-patent literature.⁵² This is particularly problematic because patents were unavailable in this field until recently; therefore most prior art in this area would be expected to be in non-patent sources.⁵³

A recent in-depth empirical analysis of prior art references in patents issued between 2001–2003 found that examiner-cited prior art references are heavily weighted toward U.S. and foreign patents, as opposed to non-patent literature.⁵⁴ For example, references to non-patent prior art are 26% less likely to be inserted by examiners than references to U.S. patents.⁵⁵ Strikingly, examiners inserted no non-patent prior art references in 69% of patents that cite this type of source.⁵⁶ One reason for this focus on the U.S. patent database may be that patents are accessible, classified by category and in a common format, while non-patent prior art requires more effort to identify and appreciate its significance.⁵⁷ An implication of this is that patents “in fields where most of the prior art is embodied in the non-patent literature or foreign patents are likely to be of lower quality.”⁵⁸ Particularly in “new” fields, such as computer software and business methods, this skewing may be most severe, as there are relatively few patents issued as yet. Rather, in these fields there may be more non-patent literature, or common knowledge may not be recorded in written format.⁵⁹ Thus, an important determinant of patent quality may be the effectiveness of prior art searching, particularly in light of the data that suggests that prior art issues are frequently the cause of invalidation of patents during litigation.

C. *Compartmentalization of Specialized Knowledge*

Related to the bias of the USPTO toward its own patent database when searching for prior art is the problem that specialized knowledge is often not widely disseminated and thus is likely to be known only to experts in the

⁵¹ James Gleick, *Patently Absurd*, N.Y. TIMES MAG., Mar. 12, 2000, § 6, available at <http://www.nytimes.com/library/magazine/home/20000312mag-patents.html>.

⁵² Robert P. Merges, *As Many As Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 589 (1999).

⁵³ *Id.*

⁵⁴ Bhaven N. Sampat, Determinants of Patent Quality: An Empirical Analysis 8 (Sept. 2005), available at http://siepr.stanford.edu/programs/SST_Seminars/patentquality_new.pdf_1.pdf.

⁵⁵ *Id.* at 9.

⁵⁶ *Id.* at 11.

⁵⁷ John R. Thomas, *Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties*, 2001 U. ILL. L. REV. 305, 318 (2001).

⁵⁸ Sampat, *supra* note 54, at 11.

⁵⁹ Merges, *supra* note 52, at 589; Arti K. Rai, *Allocating Power Over Fact-Finding in the Patent System*, 19 BERKELEY TECH. L.J. 907, 914 (2004).

field.⁶⁰ This means that the relevant prior art often may only be known to the patentee (or applicant), her competitors, and perhaps a few others.⁶¹ Thus, it may be difficult, or even impossible, for examiners to access and identify relevant prior art that may be known in a particular specialized area. If this is true, then providing the USPTO with more resources for examination will never resolve this problem. Similarly, it is widely perceived that in the software and business method areas, where there is a short history of patenting and there is not a strong tradition of non-patent literature publishing, much that is known will not be found in prior art searches.⁶²

D. *Disclosure of Prior Art by Applicants*

There is a duty of candor on the part of patent applicants to disclose prior art that is known to be relevant to patentability.⁶³ However, applicants may have disincentives to perform a thorough prior art search during prosecution of an application. One reason is a strategic one, in that applicants may be able to obtain a broader patent if the examiner is not aware of prior art that is material to the patentability of their claims.⁶⁴ Also, applicants may have concerns about facing treble damages for willful infringement, and therefore they have an incentive not to know about existing patents.⁶⁵ As a result, those who may be in the best position to locate relevant prior art that should be before the examiner during prosecution may intentionally remain ignorant about that information.

V. IMPROVING PATENT QUALITY

There is widespread agreement that steps must be taken to improve patent quality. Many parties have invested in studies of the patent system and statutory reform efforts. However, a satisfactory solution has not yet been reached. This section will discuss some of the past statutory reform, as well as current potential reform ideas proposed by Congress, study groups, and the academic community. Finally, some new approaches, particularly the use of peer review models to improve identification of relevant prior art, will be examined.

A. *Past Statutory Reform*

The American Inventors Protection Act of 1999 established the availability of *inter partes* reexamination⁶⁶ in addition to the already existing *ex parte*

⁶⁰ Jay P. Kesan, *Carrots and Sticks to Create a Better Patent System*, 17 BERKELEY TECH. L.J. 763, 766 (2002).

⁶¹ *Id.* at 767.

⁶² Rai, *supra* note 59, at 914.

⁶³ 37 C.F.R. § 1.56 (2006).

⁶⁴ Sampat, *supra* note 54, at 5.

⁶⁵ *Id.*

⁶⁶ American Inventors Protection Act of 1999, Pub. L. No. 106-113, app.1, § 4604, 113 Stat. 1501, 1501A-567 to -570 (codified at 35 U.S.C. § 311 et seq.).

reexamination system. This allows any party to initiate a reexamination of an issued patent if there is a substantial new question of patentability based on prior art.⁶⁷ A third party requester may participate in the proceeding by filing written comments each time the patentee files a response to an action on the merits by the USPTO.⁶⁸ One goal of this new system was to provide a viable lower cost option to litigation for the challenging of patent validity.⁶⁹

While in theory *inter partes* reexamination should improve the quality of patents by eliminating invalid patents without the time and expense of litigation, this option has not been widely used.⁷⁰ This is largely because of the estoppel that arises under *inter partes* reexamination. A challenger is estopped from asserting in later litigation not only any argument made during the reexamination, but also any argument that could have been made, but was not.⁷¹ This has widely been seen to favor patent holders and has discouraged third parties from using the *inter partes* proceeding.⁷² Because of this unfavorable posture, the current *inter partes* reexamination system will not lead to significant increases in patent quality through elimination of invalid patents.

B. Current Reform Proposals

Many proposals have been made to address the perceived problems of poor patent quality. Two statutory reform bills were proposed during the 109th session of Congress which included numerous revisions to the patent statute. Several study groups, including the National Research Council, the Federal Trade Commission, and the National Academy of Public Administration, have made wide-ranging recommendations for reform to the patent system. Finally, the academy has engaged in ongoing analysis of the patent system and provided proposals for reform approaches.

1. Proposed Statutory Reform

Bills proposing substantial patent reform were introduced in the House of Representatives in 2005⁷³ and in the Senate in 2006.⁷⁴ One of the major concerns behind this proposed legislation was an effort to improve the quality

⁶⁷ 35 U.S.C. §§ 311–313 (2000).

⁶⁸ 35 U.S.C. § 314 (2000).

⁶⁹ 145 CONG. REC. E1788, E1789–90 (1999).

⁷⁰ Between 1999 and 2004, only 53 *inter partes* reexamination requests were filed with the USPTO. U.S. PATENT & TRADEMARK OFFICE, REPORT TO CONGRESS ON *INTER PARTES* REEXAMINATION (2004), available at http://www.uspto.gov/web/offices/dcom/olia/reports/reexam_report.htm. Only 70 requests were filed in 2006. 2006 PERFORMANCE REPORT, *supra* note 35, at 133.

⁷¹ 35 U.S.C. § 315(c) (2000). However, the third party may subsequently raise newly discovered prior art that was unavailable to it at the time of the proceedings. *Id.*

⁷² NRC REPORT, *supra* note 22, at 96; FTC REPORT, *supra* note 25, ch. 5, at 16.

⁷³ Patent Reform Act of 2005, H.R. 2795, 109th Cong. (2005).

⁷⁴ Patent Reform Act of 2006, S. 3818, 109th Cong. (2006).

of issued patents.⁷⁵ While this legislation was not enacted, the proposed bills are instructive in that they indicate the direction that reform may take in the next Congress.

a. Re-examination Estoppel

In answering the criticism of reexamination estoppel,⁷⁶ both proposed bills would eliminate the bar to raising invalidity issues that *could* have been raised during reexamination.⁷⁷ Thus, the proposed new section 315(c) would read: “A third-party requester . . . is estopped from asserting at a later time . . . the invalidity of any claim finally determined to be valid and patentable on any ground which the third-party requester raised during the inter partes reexamination proceedings.” This relatively minor change may alleviate some of the barriers to use of *inter partes* reexamination and allow this system to function to help eliminate poor quality patents without litigation.

b. Post-Grant Opposition

Significantly, both the House and Senate have proposed instituting a post-grant opposition proceeding, similar to that which is used in Europe and Japan. Notably, this step was also recommended by reports from the National Research Council of the National Academy of Sciences, the Federal Trade Commission, and the National Academy of Public Administration.⁷⁸ The proposed opposition mechanism is similar in both of the proposed bills. It would allow a third party to file a request to invalidate one or more claims of an issued patent and provides for challenge on any grounds of patentability.⁷⁹ This is a significant difference from the existing reexamination procedure, which only allows challenges to validity based on documentary prior art.⁸⁰ Further, the proposed post-grant opposition would allow deposition of persons submitting affidavits on behalf of the opposer and patent holder and provides for the possibility of additional discovery, if “required in the interest of justice.”⁸¹ Parties to an opposition may also request an oral hearing by the opposition panel and submission of briefs and cross-examinations of all affiants and declarants in the hearing would be permitted.⁸² Finally, estoppel would only attach to any issue of law or fact actually decided by the panel.⁸³ If such an opposition system is enacted, it may achieve the goal originally envisaged

⁷⁵ 152 CONG. REC. S8804, S8831 (daily ed. Aug. 3, 2006) (statement of Sen. Leahy) (“We must improve and enhance the quality of our patent system and the patents it produces.”).

⁷⁶ See *supra* Part V.A.

⁷⁷ H.R. 2795 § 9(d); S. 3818 § 9(f)(3).

⁷⁸ NRC REPORT, *supra* note 22, at 96, FTC REPORT, *supra* note 25, ch. 5, at 23–24; NAT’L ACAD. OF PUB. ADMIN., US PATENT AND TRADEMARK OFFICE: TRANSFORMING TO MEET THE CHALLENGES OF THE 21ST CENTURY 76 (2005).

⁷⁹ H.R. 2795 § 9(f) (see proposed text for 35 U.S.C. §§ 321(a), 324); S. 3818 § 6(a)(1) (see proposed text for 35 U.S.C. § 311).

⁸⁰ 35 U.S.C. §§ 302, 311 (2000).

⁸¹ H.R. 2795 § 9(f) (see proposed text for 35 U.S.C. § 328(a) and (b)).

⁸² *Id.* (see proposed text for 35 U.S.C. § 330).

⁸³ *Id.* (see proposed text for 35 U.S.C. § 336).

under the reexamination system of eliminating invalid patents without litigation.

c. Third Party Submission of Prior Art

Both the House and Senate reform proposals also include the amendment of 35 U.S.C. § 122 to permit any person to submit prior art relevant to a patent application with a description of the significance of the prior art.⁸⁴ The submission must be made before the USPTO mails a notice of allowance or within six months of the publication of the application, whichever is earlier.⁸⁵ By allowing the submission of prior art by third parties during prosecution, this reform proposal may begin to address some of the problems of patent quality discussed above, namely the limited time devoted to examination by the USPTO, the bias of the USPTO toward patent prior art, and the lack of dissemination of specialized knowledge. Submission by third parties should help ease the burden on examiners in locating prior art, while the deadline for submissions should prevent potentially interested parties from delaying an application.⁸⁶ In addition, third parties may submit prior art that the USPTO is unaware of, either because it is in the non-patent literature, or is unpublished common knowledge.

2. Other Perspectives on Reform

In addition to the continuing process of statutory reform, the academic community, government advisory groups, and “users” of the patent system (such as biotechnology, software, and other industry groups) have proposed changes to the patent system that would improve patent quality. These include proposals for changes to the Information Disclosure Statement (IDS) required from patent applicants, fee shifting for invalidated patents, establishing a third party pre-grant opposition system, and patent bounties.

a. Enhanced Prior Art Disclosure from Applicants

A patent applicant has a duty to disclose prior art that she is aware of that is material to patentability of her invention in the form of an IDS.⁸⁷ However, the applicant has no duty to describe the relevance of the disclosed prior art, often leaving the examiner with a large number of prior art references to analyze, in addition to conducting an independent search.⁸⁸ As such, the existing IDS system may in fact negatively impact patent quality due to the additional burden it places on the examiner.⁸⁹ Several proposals have been made to require an expanded IDS from applicants that explains the relevance of the disclosed prior art.

⁸⁴ *Id.* § 10; S. 3818 § 7(c).

⁸⁵ H.R. 2795 § 10; S. 3818 § 7(c).

⁸⁶ Doug Harvey, *Reinventing the U.S. Patent System: A Discussion of Patent Reform Through an Analysis of the Proposed Patent Reform Act of 2005*, 38 TEX. TECH. L. REV. 1133, 1168 (2006).

⁸⁷ 37 C.F.R. §§ 1.97–1.98 (2006).

⁸⁸ Changes to Information Disclosure Statements and Other Related Matters, 71 Fed. Reg. 38808, 38809 (July 10, 2006) (to be codified at 37 C.F.R. pt. 1).

⁸⁹ *Id.*

The USPTO has proposed new IDS rules that it suggests will improve the “effectiveness and quality of the examination process, as well as the resulting patentability determinations.”⁹⁰ Under the proposed rules, if an applicant submits more than 20 references in an IDS, any documents of greater than 25 pages, or any non-English language document, he will be required to specifically point out the portions of the document that are material to patentability.⁹¹

A similar proposal for providing an expanded IDS to the USPTO has been made by Professor Kesan.⁹² This model would provide a stronger patent in exchange for the additional disclosure. Under this proposal, if an applicant provides an IDS that includes a discussion of how the claims are patentable over the disclosed references, any resulting patent would receive a presumption of validity (based on the disclosed prior art).⁹³ On the other hand, if the applicant chooses not to submit an expanded IDS, any resulting patent would have no presumption of validity.⁹⁴

Another proposal is for a multi-tier patent system wherein one level would require the applicant to provide the results of a prior art search and an explanation of how the claimed invention differs from the disclosed references in exchange for a guarantee of patent issuance in one year.⁹⁵ In theory, this level of protection would be sought by applicants in areas that are rapidly evolving, where a technology may be obsolete by the time a patent issues.⁹⁶ This could be particularly helpful in new technology fields, where the shortcomings in prior art searching by the USPTO are most pronounced, and where applicants are most likely to be in the best position to have knowledge of existing prior art.⁹⁷ This model retains the option for traditional examination and disclosure of prior art.⁹⁸ Thus, this proposal would require that applicants actively choose to perform a prior art search, and many applicants may choose to remain ignorant in the hopes that the USPTO will not locate relevant prior art and issue a broader patent than might be merited.

b. Fee Shifting

Currently, patent law allows the award of attorney fees to the prevailing party in litigation only in exceptional cases.⁹⁹ Circumstances which make a finding of an exceptional case appropriate include “willful infringement, inequitable conduct before the P.T.O., misconduct during litigation, vexatious

⁹⁰ *Id.*

⁹¹ *Id.* at 38813.

⁹² Kesan, *supra* note 60, at 773–76.

⁹³ *Id.* at 773.

⁹⁴ *Id.* at 775.

⁹⁵ Kristen Osenga, *Entrance Ramps, Tolls, and Express Lanes—Proposals for Decreasing Patent Congestion in the Patent Office*, 33 FLA. ST. U. L. REV. 119, 148 (2005).

⁹⁶ *Id.* at 138.

⁹⁷ *Id.* at 148.

⁹⁸ *Id.* at 146.

⁹⁹ 35 U.S.C. § 285 (2000).

or unjustified litigation, and frivolous suit.”¹⁰⁰ The proposed patent reform bill introduced in the Senate this year would award attorney fees to the prevailing party in all circumstances, unless the court finds that the non-prevailing party had a substantially justified position.¹⁰¹ Both of these provisions generally help deter willful infringement and frivolous litigation, but are unlikely to impact the quality of issued patents.

Another proposal for fee shifting that does have the potential to affect patent quality is a one-way fee shift to the defendant in circumstances where claims are invalidated in litigation or opposition proceedings on the grounds of prior art that could have been discovered by a reasonably diligent search.¹⁰² This system may discourage patentees from attempting to take advantage of the USPTO’s lack of knowledge and resources for prior art searching to obtain overbroad or invalid claims.¹⁰³ This fee shifting scheme could create an incentive for patentees to conduct a thorough prior art search prior to filing a patent.¹⁰⁴ Even if this proposal did not reduce the prosecution of overly broad or invalid claims, it could act as a deterrent to enforcement of these claims.¹⁰⁵ The effective result would be to reduce either the issuance or enforcement of invalid patents and improve the functioning of the patent system by allowing only valid patents to be enforced in the courts. The possibility of fee shifting could also provide leverage for parties to refuse to pay licensing fees on patents they believe invalid, further reducing the damage caused by poor quality patents.

c. Pre-Grant Opposition

Allowing third party opposition to patent applications *prior* to issuance of a patent may improve the quality of patents that are issued by bringing additional prior art to the attention of the USPTO during prosecution. Such a system would allow third parties to challenge a patent in an administrative opposition proceeding after patent publication, but prior to patent issuance.¹⁰⁶ An advantage of this system is that it allows third parties to provide the USPTO with potentially relevant prior art so that the information can be considered by the examiner during the examination process.¹⁰⁷ Another advantage to allowing pre-grant opposition is that it does not require the USPTO to conclude that the examination process failed, as a post-grant opposition process requires.¹⁰⁸ Cognitive dissonance theory suggests that once the decision to grant a patent is made, the USPTO is likely to require more evidence to revoke an issued patent

¹⁰⁰ Hoffman-La Roche, Inc. v. Invamed, Inc., 213 F.3d 1359, 1365 (Fed. Cir. 2000).

¹⁰¹ S. 3818, 109th Cong. § 5(5)(b) (2006).

¹⁰² Kesan, *supra* note 60, at 787.

¹⁰³ *Id.* at 795.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 796.

¹⁰⁶ *Id.* at 777.

¹⁰⁷ JAFFE & LERNER, *supra* note 16, at 182.

¹⁰⁸ Kesan, *supra* note 60, at 778.

than is objectively necessary.¹⁰⁹ Therefore, a pre-grant opposition system may be more effective at improving patent quality than a post-grant procedure.

However, there are numerous drawbacks to a pre-grant opposition system. One problem is the potential for harassment or delay of patent applications, particularly by large companies with adequate resources to pursue opposition.¹¹⁰ There may also be a lack of incentive to use the pre-grant opposition system for two reasons. One is that third parties may choose not to commit resources to opposition pre-issuance, as the USPTO may decide during examination not to issue the patent at all.¹¹¹ Second, and probably more significantly, parties may be disinclined to introduce prior art during examination because of the concern that if the patent issues in spite of the opposition there will be a strong presumption that the patent is valid over the introduced prior art.¹¹² In patent litigation, there is a more difficult burden on a challenger to show invalidity when it relies on prior art that has been considered by the USPTO, while the burden is lighter when the challenger relies on prior art that was not before the USPTO during prosecution.¹¹³ Thus, a third party may choose to wait to introduce prior art until at least a post-grant opposition proceeding, rather than weaken its potential value for invalidating the claims at issue.

d. Patent Bounties

The current patent system allows third parties to introduce relevant prior art to the patent office following the issue of a patent, or for a limited time after publication of an application while the application is still pending before the examiner.¹¹⁴ However, parties must have an incentive to bring prior art before the patent office, and there are disincentives to doing so, as discussed above in the context of pre-grant opposition proceedings. One possible incentive is to create patent “bounties” that reward parties for providing relevant information to the USPTO that contributes to rejection or invalidation of a patent.

A potential patent bounty model is one in which third parties are invited to submit prior art relevant to a published patent application prior to substantive examination.¹¹⁵ If any claim in the application is rejected over the submitted prior art, the applicant would be fined and the bounty would be paid to the informant.¹¹⁶ This system has several advantages. It brings prior art that has been missed by the examiner into the system early in the process, prior to issuance of a poor quality patent. It further provides third parties with a financial incentive to conduct prior art searching. It also should act to provide

¹⁰⁹ *Id.* at 780.

¹¹⁰ *Id.* at 783; FTC REPORT, *supra* note 25, ch. 5, at 18.

¹¹¹ Kesan, *supra* note 60, at 783.

¹¹² JAFFE & LERNER, *supra* note 16, at 183.

¹¹³ J. Michael Buchanan, *Deference Overcome: Courts' Invalidation of Patent Claims as Anticipated by Art Considered by the PTO*, 2006 STAN. TECH. L. REV. 1, 14 (2006).

¹¹⁴ 35 U.S.C. § 301 (2000), 37 C.F.R. § 1.99 (2006).

¹¹⁵ Thomas, *supra* note 57, at 342.

¹¹⁶ *Id.*

an incentive to patent applicants to conduct a more thorough prior art search in order to avoid the bounty fines,¹¹⁷ as well as the expense of patent prosecution that does not lead to protection. If the period for submitting prior art for bounty eligibility is limited, this should prevent the potential for competitors to use the system to delay pending applications. This system also may reduce the problem of third parties holding back prior art until litigation for fear of the presumption of validity over examined prior art by providing an incentive for true outside parties to search for relevant prior art. However, those best placed to have the relevant knowledge are still likely to be those who might choose to reserve prior art for future potential litigation.

Another model for patent bounties is one which applies the bounty at the stage of litigation, rather than during prosecution.¹¹⁸ In this model, the patentee would be assessed a bounty when a court invalidates at least one patent claim on a ground that the patentee could have avoided by diligent patent prosecution.¹¹⁹ This proposal includes not only prior art searching, but also inequitable conduct and inadequate written description as triggers for a bounty.¹²⁰ The bounty would be set at the amount of profit the patentee derived from practicing the claimed invention.¹²¹ The advantage to this type of patent bounty system is that it encourages litigation to conclusion (rather than settlement) of poor quality patents that are commercially significant,¹²² i.e. those that do the most damage to the system by exerting anti-competitive effects. This bounty model may encourage patent applicants to be more diligent in patent prosecution in order to avoid possible future penalties. This model focuses resources on patents that are commercially significant (which is often difficult to determine at the prosecution stage). However, the expense and uncertainty of litigation may still deter parties from entering litigation or pursuing it to its conclusion based on the possibility of a bounty, thus preventing realization of the benefits of this system.

In addition to patent bounties offered by the government, either during prosecution or litigation, BountyQuest was a private company which implemented a bounty system for locating invalidating prior art. This company posted offers of bounties from individuals or companies seeking invalidating prior art on a particular patent. Individuals could then submit potentially relevant prior art.¹²³ While BountyQuest did award at least four bounties,¹²⁴ it

¹¹⁷ *Id.* at 343.

¹¹⁸ Joseph S. Miller, *Building a Better Bounty: Litigation-Stage Rewards for Defeating Patents*, 19 BERKELEY TECH. L.J. 667, 705 (2004).

¹¹⁹ *Id.* at 707.

¹²⁰ *Id.* at 709.

¹²¹ *Id.* at 716.

¹²² *Id.* at 705.

¹²³ Nancy Lambert, *BountyQuest Introduces New Service to Help Strengthen U.S. Patent System*, INFO. TODAY NEWSBREAKS, Oct. 30, 2000, <http://newsbreaks.infotoday.com/nbReader.asp?ArticleId=17719>.

¹²⁴ Press Release, BountyQuest, BountyQuest Awards \$40,000 for Information Challenging Patent Validity; Bounty Hunters Uncover Crucial Information Missed by

was not commercially successful and is now defunct. However, its “open” model of seeking private input to prior art searching continues to be reflected in current approaches to improving patent quality.

C. *New Approaches*

An obvious step to improve patent quality is to provide adequate resources to the USPTO to perform patent examination effectively. This has been repeatedly emphasized by studies from various sources on improving the patent system, as well as from the patent bar and academic commentary.¹²⁵ If the USPTO is able to hire and retain enough skilled examiners, it should be able to reduce pendency as well as increase the examination time devoted to each application, which in turn should improve patent quality. However, as this step has not yet been taken, and appears unlikely, new approaches to achieve the goal of improved patent quality are required.

Given that patent quality is a serious concern and that a widely perceived source of poor patent quality stems from an inability of the USPTO to identify relevant prior art during the examination process, new approaches that improve the ability of the Patent Office to obtain prior art should improve patent quality. Proposals for new approaches include outsourcing prior art searching from the USPTO, community patent review, and an academic-style peer review model.

1. *Outsourcing of Prior Art Searching*

One suggestion for a new approach to improving patent quality has been to transfer the prior art search function from the USPTO to outside sources. The USPTO has embraced this possibility, citing the potential time savings (which would allow examiners to concentrate on patentability, rather than searching) and the increased quality of searches from outside contractors, particularly in emerging fields.¹²⁶ The USPTO began a pilot program in 2005 implementing outsourcing prior art searching to the private sector for international Patent Cooperation Treaty (PCT) applications.¹²⁷ If the pilot program is successful, the USPTO plans to expand the outsourcing of prior art searching to additional technology areas and increase the number of applications processed through this program.¹²⁸

There is considerable resistance to outsourcing of prior art searches. A primary concern is the quality of search results that will be obtained. Although

Standard Investigations (Jan. 30, 2001), *available at* <http://www.infotoday.com/IT/mar01/news5.htm>.

¹²⁵ See, e.g., NRC REPORT, *supra* note 22, at 104; FTC REPORT, *supra* note 25, Executive Summary at 12–13; JAFFE & LERNER, *supra* note 16, at 206.

¹²⁶ U.S. Patent & Trademark Office, The 21st Century Strategic Plan: Certification of Searching Authorities, http://www.uspto.gov/web/offices/com/strat21/action/q8p07_01.htm [hereinafter Certification of Searching Authorities].

¹²⁷ Press Release, U.S. Patent & Trademark Office, USPTO Contracts International Patent Application Searches to Commercial Firms (Sept. 21, 2005), *available at* <http://www.uspto.gov/web/offices/com/speeches/05-48.htm>.

¹²⁸ Certification of Searching Authorities, *supra* note 126.

examiners have the ability to perform a supplemental search if the outside search is inadequate,¹²⁹ a deficient search may not be apparent on its face.¹³⁰ An additional concern is that prior art searching and patentability decisions are so intertwined that separating the two functions will lead to inefficiency or decreased patent quality, rather than improving the patent system.¹³¹

In light of these concerns, it is unclear whether the USPTO plan to outsource prior art searching will gain widespread support. However, even if the pilot program for PCT applications is successful, it is unlikely to sufficiently alleviate the current pendency and quality issues being experienced in the patent system. Further, outsourcing prior art searching may not be an efficient use of USPTO funds. Since most patents are never asserted, it can be argued that money spent on prior art searches for the vast majority of patents will be wasted.¹³² Thus, methods of prior art searching that require applicants or other outside parties to provide more information to the USPTO are likely to be most efficient and effective.

2. *Community Patent Review*

The concept of community patent review ties together aspects of third party submission of prior art to the USPTO and the open source model, such as that used by BountyQuest and the online encyclopedia Wikipedia.¹³³ Community review is designed to combat the problems that contribute to poor patent quality—lack of examiner resources, reliance on patent databases, and compartmentalization of specialized knowledge.¹³⁴ This approach will be tested in a pilot project beginning in spring 2007 as a collaboration between the USPTO and the New York Law School (NYLS) Institute for Information Law & Policy.¹³⁵

The pilot community patent review program has the goal of ensuring that “the knowledgeable public can submit prior art relevant to the patent

¹²⁹ *Id.*

¹³⁰ John A. Jeffrey, *Preserving the Presumption of Patent Validity: An Alternative to Outsourcing the U.S. Patent Examiner’s Prior Art Search*, 52 CATH. U. L. REV. 761, 785 (2003).

¹³¹ *Id.* at 778–79 (“the prior art search is a discretionary decision-making process inextricably intertwined with examination”); *U.S. Patent and Trademark Office: Fee Schedule Adjustment and Agency Reform: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary*, 107th Cong. 141 (2002) (statement of Ronald A. Stern) (“The prior art search and the patent examination are integral parts of the same process. There is a synergy between the two functions that will be lost if search and examination are separated.”).

¹³² Lemley, *supra* note 16, at 1511.

¹³³ See Wikipedia: About, <http://en.wikipedia.org/wiki/Wikipedia:About>, for a description of the “wiki” open source model.

¹³⁴ See *supra* Part IV.

¹³⁵ N.Y. Law Sch. Inst. for Info. Law & Policy, Community Patent Review Project Summary 1 (2006), available at http://dotank.nyls.edu/communitypatent/p2p_exec_sum_sep_06.pdf [hereinafter Community Review Summary].

application's claims to the USPTO for consideration."¹³⁶ This will be accomplished by making patent applications available for open review (with applicant consent) on a "Peer to Patent" website for a period of time prior to substantive examination.¹³⁷ Peer reviewers who have registered with the program will be able to rate claims, submit relevant prior art, comment on the patent or other prior art submissions and rate prior art submissions.¹³⁸ At the close of the peer review period, ranked results of prior art submissions will be transmitted to the patent examiner for use in deciding patentability.¹³⁹ This method provides information that can shape the examiner's own search as well as identify prior art that is missed in the examiner's search by tapping the specialized knowledge of experts who are most familiar with a particular field.¹⁴⁰

The community patent review concept provides numerous advantages for all participants in the patent system. Inventors who prosecute patents through this process should produce a higher quality patent that will be less vulnerable to later litigation and more valuable for licensing.¹⁴¹ The USPTO will receive a list of the "top ten" prior art references that will provide directly useful information for examination, as well as guidance to shape a more efficient independent search by the examiner.¹⁴² Finally, the public at large benefits from an improved patent system that produces higher quality patents.¹⁴³

In order for community patent review to be effective, there must be sufficient incentive for "expert" members of the public to invest their time and effort. One advantage of community patent review is that it provides a fast and easy means to provide third-party submissions to the USPTO without payment of the fee that is required under the current and proposed system.¹⁴⁴ To more actively encourage participation, the NYLS/USPTO system will award "reputation points" to indicate expertise of reviewers.¹⁴⁵ This type of reputation system may attract participants from academia who are seeking to bolster professional recognition in their field.¹⁴⁶ In addition, participants may choose their level of participation, from searching and submitting prior art to simply rating prior art submitted by others.¹⁴⁷ Finally, some individuals may be encouraged to participate because of a desire to produce better quality patents in their area of expertise as well as the knowledge that their contributions are

¹³⁶ Beth Simone Noveck, "Peer to Patent": *Collective Intelligence, Open Review, and Patent Reform*, 20 HARV. J. L. TECH. 123, 145 (2006).

¹³⁷ Community Review Summary, *supra* note 135, at 8.

¹³⁸ *Id.* at 9.

¹³⁹ *Id.*

¹⁴⁰ Noveck, *supra* note 136, at 144.

¹⁴¹ *Id.* at 152.

¹⁴² *Id.*

¹⁴³ *Id.* at 153.

¹⁴⁴ 37 C.F.R. § 1.99 (2006); S. 3818, 109th Cong. § 7(c) (2006); H.R. 2795, 109th Cong. § 10 (2005).

¹⁴⁵ Noveck, *supra* note 136, at 150.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 153.

likely to have an impact on the decision made at the USPTO.¹⁴⁸ The NYLS/USPTO pilot program will provide at least an initial indication as to whether these motivations are sufficient to drive public participation in patent review.

In addition to the NYLS/USPTO pilot project, open source patent review is emerging in the form of WikiPatents¹⁴⁹ and Patent Debate.¹⁵⁰ Like the pilot community patent review program, WikiPatents allows the public to submit prior art references, rate the relevancy of references included in the patent, and comment on the submitted prior art.¹⁵¹ Similarly, Patent Debate allows individuals to post commentary on any published patent application. However, unlike the NYLS/USPTO program, WikiPatent and Patent Debate allow review only of published patent applications or issued patents. As a result, the information provided by the public will probably come too late to be useful in the examination process. Further, it is unclear whether patent examiners will access or use information from these sites, given the recent ban on examiners using Wikipedia.¹⁵² The USPTO views Wikipedia as problematic because it is “constantly changing,”¹⁵³ and it seems likely that WikiPatent and Patent Debate would be perceived similarly.

3. *Traditional Peer Review*

While there are many advantages to the community patent review model described above, problems remain as to ensuring input from those who are most knowledgeable about a particular field. Because participation in the community patent review is based on individual knowledge about the program and interest in participation, those who have the most relevant knowledge about a given patent application may not be aware of the review program or the particular application, or may choose not to participate for a variety of reasons. Therefore, it is important to consider a more traditional model of peer review that may also address the need to supply relevant prior art to patent examiners, while ensuring participation of those most likely to be knowledgeable in the field.

a. *The Peer Review Model for Patents*

Peer review is widely practiced in the academic arena, where it is used to evaluate the quality of articles submitted to academic journals and in making funding decisions among grant applications. In both contexts, the general model is that the submitted article or application is sent to two or more independent reviewers who have expertise in the relevant field.¹⁵⁴ In this

¹⁴⁸ *Id.*

¹⁴⁹ WikiPatents—Community Patent Review, <http://www.wikipatents.com>.

¹⁵⁰ IP.com Patent Debate, <http://www.patentdebate.com>.

¹⁵¹ See WikiPatents, Frequently Asked Questions, <http://www.wikipatents.com/faq.php>.

¹⁵² Lorraine Woellert, *Kicking Wiki Out of the Patent Office*, BUS. WEEK, Sept. 4, 2006, available at http://www.businessweek.com/magazine/content/06_36/c3999012.htm.

¹⁵³ *Id.* (quoting U.S. Patent Commissioner John Doll).

¹⁵⁴ J. B. Ruhl & James Salzman, *In Defense of Regulatory Peer Review*, 84 WASH. U. L. REV. 1, 13 (2006).

model, peer review does not provide a de novo analysis of the data, but acts as a mechanism to ensure quality, both by ranking submissions and by providing an incentive for applicants to provide substantiated work.¹⁵⁵

A peer review model for patent applications could be developed along much the same lines as traditional academic peer review. Similar to the approach of many academic journals, the USPTO could develop a scientific advisory board consisting of individuals who would receive applications and identify several potential expert reviewers in the specific field. The application could then be sent to several reviewers who would be asked to carry out a search and identify relevant prior art, which would be transmitted to the USPTO. As with traditional review of journal articles or grant applications, a short deadline for reply would be set, thus preventing delay of patent applications. By using multiple reviewers, the identified prior art could be “ranked” more highly if the prior art is provided by more than one reviewer. However, the use of multiple reviewers also helps ensure that no relevant prior art is missed by any one individual search strategy. Ideally, at least three reviewers should be used in order to provide useful ranking and ensure complete coverage of the prior art.

This model of peer review will require an initial investment of time to identify and recruit a scientific advisory board and suitable peer reviewers. However, it has a significant advantage over the open source model in that once reviewers are identified, input from individuals who are perceived to be most knowledgeable in a particular field will be actively solicited and certain to be received. This helps to avoid the problems of the community review model in which participation of the most appropriate individuals is left entirely to self-motivation. In the traditional peer review model, many individuals are likely to perceive recruitment to serve as a reviewer as a mark of professional recognition and therefore be motivated to participate in the review.

b. Applying Traditional Peer Review to Specific Fields

The academic type of peer review model may be best suited to biotechnology and life science patents. Both academic life science and biotechnology industry scientists are familiar with the use of peer review in the arenas of publishing and funding.¹⁵⁶ In academia, participating in peer review is considered a professional obligation and is also recognized as an honor.¹⁵⁷ Particularly in the life sciences, requiring a contribution from academia to the patent system is consistent with the dramatic increase in patenting by

¹⁵⁵ *Id.* at 14.

¹⁵⁶ See, e.g., Nature Publishing Group, How to Publish Your Paper: Authors & Referees, http://npg.nature.com/npg/servlet/Content?data=xml/05_sister.xml&style=xml/05_sister.xml [hereinafter NPG]; Nat'l Inst. of Health Ctr. for Scientific Rev., “The Peer Review Process,” <http://cms.csr.nih.gov/AboutCSR/OverviewofPeerReviewProcess.htm>.

¹⁵⁷ B. Gitanjali, *Peer Review—Process, Perspectives and the Path Ahead*, 47 J. POSTGRADUATE MED. 210, 212 (2001), available at <http://www.jpgmonline.com/article.asp?issn=0022-3859;year=2001;volume=47;issue=3;spage=210;epage=4;aurlast=Gitanjali>.

universities following the passage of the Bayh-Dole Act in 1980.¹⁵⁸ Technologies that have been particularly emphasized in university patenting are biotechnology and pharmaceuticals.¹⁵⁹ Therefore, given the increase in patent applications from universities in biotechnology, it seems appropriate that academic scientists contribute to dealing with these applications through participation in peer review for prior art identification. Additionally, in this area patent examiners often face the difficulty of sorting through an overabundance of prior art.¹⁶⁰ The assistance of a few expert reviewers in the field could rapidly narrow the examiner's focus to the most relevant pieces of prior art that should be considered in making a patentability decision. For these reasons, a pilot program implementing traditional peer review of patents in the biotechnology areas should be undertaken initially to determine the feasibility of this model.

While individuals in biotechnology and life sciences are most familiar with the traditional academic peer review model, this system may also be useful for other disciplines, such as software and business methods. Although these fields do not traditionally participate in peer review systems, the software industry has demonstrated its willingness to participate in the NYLS/USPTO community patent review pilot.¹⁶¹ This indicates that at least some "non-academic" disciplines are open to the concept of peer review in some form. Similar to the biotechnology and life science areas, traditional peer review could rapidly identify the most relevant prior art for a patent examiner. However, unlike the biotechnology situation, in developing fields, the problem is that much of the relevant prior art is not present in patents or other published formats.¹⁶² This makes prior art difficult for patent examiners to identify, but could be easily and rapidly located by experts in the field. Therefore, this type of peer review should be an efficient and effective way to ensure that the USPTO considers the most relevant prior art during examination of patent applications in developing fields.

c. Possible Drawbacks to Peer Review Models

While there are many advantages to using community or traditional peer review, there are also some potential disadvantages. For example, both the community patent review and the traditional peer review models require early disclosure of patent applications to the public. There is likely to be concern that competitors could use these systems to gain access to confidential information, thus harming the incentive for patenting. However, most applications are currently published eighteen months after filing and there is no additional harm

¹⁵⁸ U.S. Patent & Trademark Office, U.S. Colleges and Universities—Utility Patent Grants 1969–2003, http://www.uspto.gov/go/oeip/taf/univ/doc/doc_info.htm (noting that U.S. academic institutions accounted for 0.82% of utility patents issued in 1985, but about 2% of utility patents issued in 2000–2003).

¹⁵⁹ *Id.*

¹⁶⁰ Noveck, *supra* note 136, at 136.

¹⁶¹ Community Review Summary, *supra* note 135, at 18 (participants include General Electric, Hewlett-Packard, IBM, Intel, Microsoft, Oracle, and Red Hat).

¹⁶² Noveck, *supra* note 136, at 136; Rai, *supra* note 59, at 914.

associated with the review process.¹⁶³ In contrast, the advantage to the public in improving the quality of patents is high, making the review system an overall benefit.

Another potential problem with both community review and traditional peer review models arises when reviewers have a conflict of interest with the patent applicant, such as being a direct competitor. Traditional peer review systems have long required disclosure of conflicts to eliminate this problem.¹⁶⁴ Similar conflict of interest disclosures can be required in the patent peer review system to deal with this problem. In addition, traditional peer review often allows applicants to suggest the names of potential reviewers for consideration and request exclusion of specific reviewers who may have a conflict or bias.¹⁶⁵ These measures may be taken in a patent peer review system as well. However, conflict of interest is likely to be less of a problem in the patent peer review system than in journal or grant review. This is because rather than making a judgment on the value of the patent application, reviewers will be asked only to identify prior art that may be relevant to the application. This prior art will subsequently be evaluated by the patent examiner. Therefore, there is less opportunity to influence the ultimate decision of patentability in this model, than in journal or grant peer review. Thus, despite the potential drawbacks, the peer review model provides substantial advantages over current proposals to improve prior art identification by the USPTO.

VI. CONCLUSION

The current crisis in patent quality and the rise of patent trolls has in part been fueled by inadequate knowledge of relevant prior art on the part of the USPTO. While providing more resources to the USPTO so that patent examiners can conduct more thorough prior art searches during examination will help alleviate the problem, this will not be sufficient to address current concerns. Mechanisms which facilitate the transfer of knowledge about prior art from experts in the field to the USPTO are a more efficient solution. Some proposed models include post-grant opposition, enhanced prior art disclosure from applicants, fee shifting when a patent is invalidated based on prior art, pre-grant opposition proceedings, and patent bounties. An additional means of providing information about prior art to the USPTO is through “peer review” mechanisms. A pilot program is currently testing an open source model of community patent review to identify prior art for pending patent applications. However, a model based on more traditional academic-style peer review where individuals are invited to participate and asked to review specific applications may be more effective. This ensures participation by experts in each field,

¹⁶³ Noveck, *supra* note 136, at 155.

¹⁶⁴ See, e.g., Nat'l Inst. of Health, Conflict of Interest, Confidentiality and Non-Disclosure Rules: Information for Reviewers of Grant Applications and R&D Contract Proposals (Jan. 12, 2005), available at http://grants.nih.gov/grants/peer/COI_Information.pdf.

¹⁶⁵ See, e.g., NPG, *supra* note 156.

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rather than depending solely on self-motivation to provide application review, as in community patent review. This model may be quickly accepted in the life sciences, where peer review is a routine part of the academic system, and a pilot project should initially be undertaken in this area.