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Patent Reform in the 110th Congress: Innovation Issues

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Patent Reform in the 110th Congress: Innovation Issues

Summary

Congressional interest in patent policy and possible patent reform has expanded as the importance of intellectual property to innovation has increased. Patent ownership is perceived as an incentive to the technological advancement that leads to economic growth. However, growing interest in patents has been accompanied by persistent concerns about the fairness and effectiveness of the current system. Several recent studies, including those by the National Academy of Sciences and the Federal Trade Commission, have recommended patent reform to address perceived deficiencies in the operation of the patent regime. Other experts maintain that major alterations in existing law are unnecessary and that the patent process can adapt, and is adapting, to technological progress.

Pending patent reform proposals would work significant legal changes to the patent system. Among the more notable of these proposed changes is a shift to a first-inventor-to-file priority system; substantive and procedural modifications to the patent law doctrine of willful infringement; and adoption of post-grant review proceedings, prior user rights, and pre-issuance publication of all pending applications. Several of these proposals have been the subject of discussion within the patent community for many years, but others are more novel propositions.

Current legislative reform efforts (H.R. 1908, S. 1145) also would address several issues of concern, including the quality of issued patents, the expense and complexity of patent litigation, harmonization of U.S. patent law with the laws of our leading trading partners, potential abuses committed by patent speculators, and the special needs of individual inventors, universities, and small firms with respect to the patent system. In addition, although the existing patent statute in large measure applies the same basic rules to different sorts of inventions, regardless of the technological field of that invention, the patent system is widely believed to impact different industries in varying ways.

The provisions of the proposed legislation would arguably work the most sweeping reforms to the U.S. patent system since the nineteenth century. However, many of these proposals, such as pre-issuance publication and prior user rights, have already been implemented in U.S. law to a more limited extent. These and other reforms, such as the first-inventor-to-file priority system and post-grant review proceedings, also reflect the decades-old patent practices of Europe, Japan, and our other leading trading partners.

Other knowledgeable observers are nonetheless concerned that certain of these proposals would weaken the patent right, thereby diminishing needed incentives for innovation. Some also believe that changes of this magnitude, occurring at the same time, do not present the most prudent course for the patent system. Patent reform therefore confronts Congress with difficult legal, practical, and policy issues, but also with apparent possibilities for altering and possibly improving the legal regime that has long been recognized as an engine of innovation within the U.S. economy.

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Patent Reform in the 110th Congress: Innovation Issues

Introduction

Congressional interest in patent reform has increased as the patent system becomes more significant to U.S. industry.[1] There is broad agreement that more patents are sought and enforced then ever before; that the attention paid to patents in business transactions and corporate boardrooms has dramatically increased; and that the commercial and social significance of patent grants, licenses, judgments, and settlements is at an all-time high.[2] As the United States becomes even more of a high-technology, knowledge-based economy, the importance of patents may grow even further in the future.

Increasing interest in patents has been accompanied by persistent concerns about the fairness and effectiveness of the current system. Several recent studies, including those by the National Academy of Sciences and the Federal Trade Commission, have recommended legal reform to address perceived deficiencies in the operation of the patent regime.[3] Other experts maintain that major alterations in existing law are unnecessary and that the patent process can adapt, and is adapting, to technological progress.

Bills have been introduced before both houses of the 110th Congress that attempt to respond to current concerns about the functioning of the patent process. With respect to the House of Representatives, H.R. 1908, titled The Patent Reform Act of 2007, was introduced on April 17, 2007. On the same date, S. 1145, also titled the Patent Reform Act of 2007, was introduced in the Senate. The two bills are identically worded.

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[1] This report is based substantially on CRS Report RL32996, *Patent Reform: Innovation Issues*, by John R. Thomas and Wendy H. Schacht. That report addressed patent reform issues in the 109th Congress.

[2] Statistics from the United States Patent and Trademark Office (USPTO) support this account. In 1980, the USPTO received 104,329 utility patent applications; by 2005, this number had grown to 390,733 applications. The number of U.S. patents granted in 1980 was 61,819; in 2006 this number had increased to 173,771. U.S. Patent and Trademark Office, *U.S. Patent Statistics, Calendar Years 1963-2006*. Available at [http://www.uspto .gov].

[3] National Research Council, National Academy of Sciences, *A Patent System for the 21st Century*, [Washington, National Academies Press, 2004] and Federal Trade Commission, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, October 2003, available at [http://www.ftc.gov].

Both the House and the Senate bills propose significant legal reforms to the patent system. Among these reforms are a shift to a first-inventor-to-file priority system; substantive and procedural modifications to the doctrine of willful infringement; and adoption of assignee filing, post-grant review proceedings, prior user rights, and pre-issuance publication of all pending applications. Several of these proposals have been the subject of discussion within the patent community for many years, but others present more novel propositions.

This study provides an overview of current patent reform issues. It begins by offering a summary of the structure of the current patent system and the role of patents in innovation policy. The report then reviews some of the broader issues and concerns, including patent quality, the high costs of patent litigation, international harmonization, and speculation in patents, that have motivated these diverse legislative reform proposals. The specific components of this legislation are then identified and reviewed in greater detail.

Patents and Innovation Policy

The Mechanics of the Patent System

The patent system is grounded in Article I, Section 8, Clause 8 of the U.S. Constitution, which states that "The Congress Shall Have Power ... To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries ...." As mandated by the Patent Act of 1952,[4] U.S. patent rights do not arise automatically. Inventors must prepare and submit applications to the U.S. Patent and Trademark Office (USPTO) if they wish to obtain patent protection.[5] USPTO officials known as examiners then assess whether the application merits the award of a patent.[6] The patent acquisition process is commonly known as "prosecution."[7]

In deciding whether to approve a patent application, a USPTO examiner will consider whether the submitted application fully discloses and distinctly claims the invention.[8] In addition, the application must disclose the "best mode," or preferred way, that the applicant knows to practice the invention.[9] The examiner will also determine whether the invention itself fulfills certain substantive standards set by the patent statute. To be patentable, an invention must be useful, novel and nonobvious. The requirement of usefulness, or utility, is satisfied if the invention is operable and

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[4] P.L. 82-593, 66 Stat. 792 (codified at Title 35 United States Code).

[5] 35 U.S.C. § 111.

[6] 35 U.S.C. § 131.

[7] John R. Thomas, "On Preparatory Texts and Proprietary Technologies: The Place of Prosecution Histories in Patent Claim Interpretation," 47 *UCLA Law Review* (1999), 183.

[8] 35 U.S.C. § 112.

[9] *Ibid*.

provides a tangible benefit.[10] To be judged novel, the invention must not be fully anticipated by a prior patent, publication or other state-of-the-art knowledge that is collectively termed the "prior art."[11] A nonobvious invention must not have been readily within the ordinary skills of a competent artisan at the time the invention was made.[12]

If the USPTO allows the patent to issue, the patent proprietor obtains the right to exclude others from making, using, selling, offering to sell or importing into the United States the patented invention.[13] Those who engage in these acts without the permission of the patentee during the term of the patent can be held liable for infringement. Adjudicated infringers may be enjoined from further infringing acts.[14] The patent statute also provides for the award of damages "adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer."[15]

The maximum term of patent protection is ordinarily set at 20 years from the date the application is filed.[16] At the end of that period, others may employ that invention without regard to the expired patent.

Patent rights are not self-enforcing. Patentees who wish to compel others to observe their rights must commence enforcement proceedings, which most commonly consist of litigation in the federal courts. Although issued patents enjoy a presumption of validity, accused infringers may assert that a patent is invalid or unenforceable on a number of grounds.[17] The U.S. Court of Appeals for the Federal Circuit (Federal Circuit) possesses national jurisdiction over most patent appeals from the district courts.[18] The U.S. Supreme Court enjoys discretionary authority to review cases decided by the Federal Circuit.[19]

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[10] 35 U.S.C. § 101.

[11] 35 U.S.C. § 102.

[12] 35 U.S.C. § 103.

[13] 35 U.S.C. § 271(a).

[14] 35 U.S.C. § 283.

[15] 35 U.S.C. § 284.

[16] 35 U.S.C. § 154(a)(2). Although patent term is based upon the filing date, the patentee gains no enforceable legal rights until the USPTO allows the application to issue as a granted patent. A number of Patent Act provisions may modify the basic 20-year term, including examination delays at the USPTO and delays in obtaining marketing approval for the patented invention from other federal agencies.

[17] 35 U.S.C. § 282.

[18] 28 U.S.C. § 1295(a)(1).

[19] 28 U.S.C. § 1254(1).

Innovation Policy

Patent ownership is perceived to be an incentive to innovation, the basis for the technological advancement that contributes to economic growth. It is through the commercialization and use of new products and processes that productivity gains are made and the scope and quality of goods and services are expanded. Award of a patent is intended to stimulate the investment necessary to develop an idea and bring it to the marketplace embodied in a product or process. Patent title provides the recipient with a limited-time monopoly over the use of his discovery in exchange for the public dissemination of information contained in the patent application. This is intended to permit the inventor to receive a return on the expenditure of resources leading to the discovery but does not guarantee that the patent will generate commercial benefits. The requirement for publication of the patent is expected to stimulate additional innovation and other creative means to meet similar and expanded demands in the marketplace.

Innovation produces new knowledge. One characteristic of this knowledge is that it is a "public good," a good that is not consumed when it is used. This "public good" concept underlies the U.S. patent system. Absent a patent system, "free riders" could easily duplicate and exploit the inventions of others. Further, because they incurred no cost to develop and perfect the technology involved, copyists could undersell the original inventor. The resulting inability of inventors to capitalize on their inventions would lead to an environment where too few inventions are made.[20] The patent system corrects this market failure problem by providing innovators with an exclusive interest in their inventions, thereby allowing them to capture the innovation's marketplace value.

The regime of patents purportedly serves other goals as well. The patent system encourages the disclosure of products and processes, for each issued patent must include a description sufficient to enable skilled artisans to practice the patented invention.[21] At the close of the patent's 20-year term,[22] others may practice the claimed invention without regard to the expired patent. In this manner the patent system ultimately contributes to the growth of the public domain.

Even during their term, issued patents may also encourage others to "invent around" the patentee's proprietary interest. A patentee may point the way to new products, markets, economies of production and even entire industries. Others can build upon the disclosure of a patent instrument to produce their own technologies that fall outside the exclusive rights associated with the patent.[23]

The patent system has also been identified as a facilitator of markets. Absent patent rights, an inventor may have scant tangible assets to sell or license. In

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[20] *See* Rebecca S. Eisenberg, "Patents and the Progress of Science: Exclusive Rights and Experimental Use," 56 *University of Chicago Law Review* 1017 (1989).

[21] 35 U.S.C. § 112.

[22] 35 U.S.C. § 154.

[23] Eisenberg, *supra,* at 1017.

addition, an inventor might otherwise be unable to police the conduct of a contracting party. Any technology or know-how that has been disclosed to a prospective licensee might be appropriated without compensation to the inventor. The availability of patent protection decreases the ability of contracting parties to engage in opportunistic behavior. By lowering such transaction costs, the patent system may make technology-based transactions more feasible.[24]

Through these mechanisms, the patent system can act in more socially desirable ways than its chief legal alternative, trade secret protection. Trade secrecy guards against the improper appropriation of valuable, commercially useful and secret information. In contrast to patenting, trade secret protection does not result in the disclosure of publicly valuable information. That is because an enterprise must take reasonable measures to keep secret the information for which trade secret protection is sought. Taking the steps necessary to maintain secrecy, such as implementing physical security measures, also imposes costs that may ultimately be unproductive for society.[25]

The patent system has long been subject to criticism, however. Some observers have asserted that the patent system is unnecessary due to market forces that already suffice to create an optimal level of innovation. The desire to obtain a lead time advantage over competitors, as well as the recognition that technologically backward firms lose out to their rivals, may well provide sufficient inducement to invent without the need for further incentives.[26] Other commentators believe that the patent system encourages industry concentration and presents a barrier to entry in some markets.[27] Still other observers believe that the patent system too frequently attracts speculators who prefer to acquire and enforce patents rather than engage in socially productive activity.[28]

When analyzing the validity of these competing views, it is important to note the lack of rigorous analytical methods available for studying the effect of the patent law upon the U.S. economy as a whole. The relationship between innovation and patent rights remains poorly understood. As a result, current economic and policy tools do not allow us to calibrate the patent system precisely in order to produce an optimal level of investment in innovation. Thus, each of the arguments for and against the patent system remains open to challenge by those who are unpersuaded by their internal logic.

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[24] Robert P. Merges, "Intellectual Property and the Costs of Commercial Exchange: A Review Essay," 93 *Michigan Law Review* (1995), 1570.

[25] David D. Friedman *et al.*, "Some Economics of Trade Secret Law," 5 *Journal of Economic Perspectives* (1991), 61.

[26] *See* Frederic M. Sherer, *Industrial Market Structure and Economic Performance* (1970), 384-87.

[27] *See* John R. Thomas, "Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties," *University of Illinois Law Review* (2001), 305.

[28] *Ibid.*

Current Issues and Concerns

Pending legislation proposes a number of changes to diverse aspects of the patent system. Although these reforms were undoubtedly motivated by a range of concerns, a discrete number of issues have been the subject of persistent discussion in the patent community over a period of many years. Among these issues are concern for the quality of issued patents, the expense and complexity of patent litigation, harmonization of U.S. patent law with the laws of our leading trading partners, potential abuses committed by patent speculators, and the special needs of individual inventors, universities, and small firms with respect to the patent system. In addition, although the patent statute in large measure applies the same basic rules to different sorts of inventions, regardless of the technological field of that invention, the patent system is widely believed to impact different industries in varying ways.[29] As a result, different industries can be expected to espouse dissimilar views of certain patent reform proposals. Before turning to a more specific analysis of individual legislative proposals, this report reviews the proposed legislation's broader themes with regard to these issues and concerns.

Patent Quality

Government, industry, academia and the patent bar alike have long insisted that the USPTO approve only those patent applications that describe and claim a patentable advance.[30] Because they meet all the requirements imposed by the patent laws, quality patents may be dependably enforced in court and employed as a technology transfer tool. Such patents are said to confirm private rights by making their proprietary uses, and therefore their value, more predictable. Quality patents also may clarify the extent that others may approach the protected invention without infringing. These traits in turn should strengthen the incentives of private actors to engage in value-maximizing activities such as innovation or commercial transactions.[31]

In contrast, poor patent quality is said to hold deleterious consequences. Large numbers of inappropriately granted patents may negatively impact entrepreneurs. For example, innovative firms may be approached by an individual with a low quality patent that appears to cover the product they are marketing. The innovative firm may recognize that the cost of challenging a patent even of dubious validity may be considerable. Therefore, the firm may choose to make payments under licensing

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[29] *See* Dan L. Burk & Mark A. Lemley, "Is Patent Law Technology-Specific?," 17 *Berkeley Technology Law Journal* (2002), 1155.

[30] CRS Report RL31281, *Patent Quality and Public Policy: Issues for Innovative Firms in Domestic Markets*, by John R. Thomas.

[31] *See* Joseph Farrell & Robert P. Merges, "Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help," 19 *Berkeley Technology Law Journal* (2004), 943.

arrangements, or perhaps decide not to market its product at all, rather than contest the patent proprietor's claims.[32]

Poor patent quality may also encourage opportunistic behavior. Perhaps attracted by large damages awards and a potentially porous USPTO, rent-seeking entrepreneurs may be attracted to form speculative patent acquisition and enforcement ventures. Industry participants may also be forced to expend considerable sums on patent acquisition and enforcement.[33] The net results would be reduced rates of innovation, decreased patent-based transactions, and higher prices for goods and services.

Although low patent quality appears to affect both investors and competitors of a patentee, patent proprietors themselves may also be negatively impacted. Patent owners may make managerial decisions, such as whether to build production facilities or sell a product, based upon their expectation of exclusive rights in a particular invention. If their patent is declared invalid by the USPTO or a court, patentees will be stripped of exclusive rights without compensation. The issuance of large numbers of invalid patents would increase the possibility that the investment-backed expectations of patentees would be disappointed.[34]

The notion that high patent quality is socially desirable has been challenged, however. Some commentators believe that market forces will efficiently assign patent rights no matter what their quality. Others observe that few issued patents are the subject of litigation and further estimate that only a minority of patents are licensed or sold. Because many patented inventions are not used in a way that calls their validity into question, some observers maintain, society may be better off making a detailed review into the patentability of an invention only in those few cases where that invention is of commercial significance.[35]

Pending legislation bears upon the patent quality issue. Both the House and Senate bills (H.R. 1908 and S. 1145) would allow for increased public participation in USPTO decisionmaking through a pre-issuance submission procedure. These bills also allow for post-issuance review proceedings, which would potentially allow interested parties to "weed out" invalid patents before they are the subject of licensing or infringement litigation.

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[32] *See* Bronwyn H. Hall & Dietmar Harhoff, "Post-Grant Reviews in the U.S. Patent System — Design Choices and Expected Impact," 19 *Berkeley Technology Law Journal* (2004), 989.

[33] *See* Robert P. Merges, "As Many As Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform," 14 *Berkeley Technology Law Journal* (1999), 577.

[34] *See* Craig Allen Nard, "Certainty, Fence Building and the Useful Arts," 74 *Indiana Law Journal* (1999), 759.

[35] Mark A. Lemley, "Rational Ignorance at the Patent Office," 95 *Northwestern University Law Review* (2001), 1495.

Litigation Costs

Patent enforcement is often expensive. The complex legal and technological issues, extensive discovery proceedings, expert witnesses, and specially qualified attorneys associated with patent trials can lead to high costs.[36] One study published in 2000 concluded that the average cost of patent enforcement was $1.2 million.[37] These expenses appear to be increasing, with one more recent commentator describing an "industry rule of thumb" whereby "any patent infringement lawsuit will easily cost $1.5 million in legal fees alone to defend."[38] Higher stakes litigation is even more costly: for patent suits involving damages claims of more than $25 million, expenses reportedly increase to $4 million per side.[39]

For innovative firms that are not infrequently charged with patent infringement, or that bring claims of patent infringement themselves, the annual expenses associated with patent litigation can be very dear. The Microsoft Corporation reportedly defends an average of 35 to 40 patent lawsuits annually at a cost of almost $100 million.[40] The Intel Corporation has recently been estimated to spend $20 million a year on patent litigation.[41]

The high costs of litigation may discourage patent proprietors from bringing meritorious claims against infringers. They may also encourage firms to license patents of dubious merit rather than contest them in court. Pending legislation would endeavor to make patent litigation less costly and complex through modification of the doctrine of willful infringement. H.R. 1908 and S. 1145 would also allow for an interlocutory appeal of claim construction rulings by the district courts. In addition, these bills call for an administrative post-grant review proceeding that could serve as a less expensive alternative to litigation.

International Harmonization

In our increasingly globalized, high-technology economy, patent protection in a single jurisdiction is often ineffective to protect the interests of inventors. As a result, U.S. inventors commonly seek patent protection abroad. Doing so can be a costly, time-consuming, and difficult process. There is no global patent system.

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[36] Steven J. Elleman, "Problems in Patent Litigation: Mandatory Mediation May Provide Settlement and Solutions," 12 *Ohio State Journal on Dispute Resolution* (1997), 759.

[37] Dee Gill, "Defending Your Rights: Protecting Intellectual Property is Expensive," *Wall Street Journal* (September 25, 2000), 6.

[38] Mark H. Webbink, "A New Paradigm for Intellectual Property Rights in Software," 2005 *Duke Law and Technology Review* (May 1, 2005), 15.

[39] *See* Sarah Lai Stirland, "Will Congress Stop High-Tech Trolls?," *National Journal* (February 26, 2005), 612.

[40] "Microsoft Advocates for Patent Reform," *eWEEK* (March 10, 2005).

[41] Stirland, *supra*, at 613.

Inventors who desire intellectual property protection in a particular country must therefore take specific steps to procure a patent within that jurisdiction.[42]

Differences in national laws are among the difficulties faced by U.S. inventors seeking patent rights overseas. Although the world's patent laws have undergone considerable harmonization in recent years, several notable distinctions between U.S. patent law and those of our leading trading partners persist. H.R. 1908 and S. 1145 would address some of these differences by modifying U.S. patent law in order to comply with international standards. Among these proposed reforms are adoption of a first-inventor-to-file priority system, a post-grant review system, assignee filing, and prior user rights.

Potential Abuses of Patent Speculators

Some commentators believe that the patent system too frequently attracts speculators who prefer to acquire and enforce patents rather than engage in research, development, manufacturing, or other socially productive activity.[43] Patent speculators are sometimes termed "trolls," after creatures from folklore that would emerge from under a bridge in order to waylay travelers.[44] The late Jerome C. Lemelson, a prolific inventor who owned hundreds of patents and launched numerous charges of patent infringement, has sometimes been mentioned in this context. The total revenue of the Lemelson estate's patent licensing program has been reported as in excess of $1.5 billion.[45] But as explained by journalist Michael Ravnitsky, "critics charge that many Lemelson patents are so-called submarine patents, overly broad applications that took so long to issue or were so general in nature that their owners could unfairly claim broad infringement across entire industry sectors."[46] Of such patent ventures, patent attorney James Pooley observes:

> Of course there is nothing inherently wrong with charging someone rent to use your property, including intellectual property like patents. But it's useful to keep in mind — especially when listening to prattle about losing American jobs to foreign competition — that these patent mills produce no products. Their only output is paper, of a highly threatening sort.[47]

Patent enforcement suits brought by patent speculators appear to present special concerns for manufacturers and service providers. If one manufacturer or service

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[42] CRS Report RL31132, *Multinational Patent Acquisition and Enforcement: Public Policy Challenges and Opportunities for Innovative Firms*, by John R. Thomas.

[43] *See* Elizabeth D. Ferrill, "Patent Investment Trusts: Let's Build a Pit to Catch the Patent Trolls," 6 *North Carolina Journal of Law and Technology* (2005), 367.

[44] *See* Lorraine Woellert, "A Patent War Is Breaking Out on the Hill," *BusinessWeek* 45 (July 4, 2005).

[45] Nicholas Varchaver, "The Patent King," *Fortune* (May 14, 2001), 202.

[46] Michael Ravnitsky, "More Lemelson Suits," *The National Law Journal* (December 17, 2001), B9.

[47] James Pooley, "Opinion: U.S. Patent Reform — A Good Invention," *Electronic Business* (January 1, 2000), 72.

provider commences litigation against another, the defendant can often counter with its own claims of patent infringement against the plaintiff. Because patent speculators do not otherwise participate in the marketplace, however, they are immune to such counterclaims. This asymmetry in litigation positions reportedly reduces the bargaining power of manufacturers and service providers, potentially exposing them to harassment.[48]

Observers hasten to note, however, that not every patent proprietor who does not commercialize the patented invention should properly be considered an opportunistic "troll." A nonmanufacturing patentee may lack the expertise or resources to produce a patented product, prefer to commit itself to further innovation, or otherwise have legitimate reasons for its behavior.[49] Universities and small biotechnology companies often fit into this category. Further, whether classified as a "troll" or not, each patent owner has presumptively fulfilled all of the relevant statutory requirements. Among these obligations is a thorough disclosure of a novel, nonobvious invention to the public.[50]

The legislation introduced in the 110th Congress would impact concerns over "trolling" by the introduction of post-grant review procedures as well as reform of patent damages law.

The Role of Individuals, Universities and Small Entities

Entrepreneurs and small, innovative firms play a role in the technological advancement and economic growth of the United States.[51] Several studies commissioned by U.S. federal agencies have concluded that individuals and small entities constitute a significant source of innovative products and services.[52] Studies

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[48] *See* Ronald J. Mann, "Do Patents Facilitate Financing in the Software Industry?," 83 *Texas Law Review* (2005), 961.

[49] *See* David G. Barker, "Troll or No Troll? Policing Patent Usage with An Open Post-Grant Review," 2005 *Duke Law and Technology Review* (April 15, 2005), 11.

[50] 35 U.S.C. § 112.

[51] National Science Board, *Science and Engineering Indicators, 1993* (December 8, 1993), 185. *See also* CRS Report RL30216, *Small, High Tech Companies and Their Role in the Economy: Issues in the Reauthorization of the Small Business Innovation (SBIR) Program*, by Wendy H. Schacht.

[52] For example, the National Academy of Engineering concluded that "small high-tech companies play a critical and diverse role in creating new products and services, in developing new industries, and in driving technological change and growth in the U.S. economy." National Academy of Engineering, *Risk & Innovation: The Role and Importance of Small High-Tech Companies in the U.S. Economy* (Washington: National Academy Press, 1995), 37. This assessment was founded on the ability of small firms to develop markets rapidly, generate new goods and services, and offer diverse products. The study also concluded that small businesses were less risk adverse than larger, established corporations and were often better positioned to exploit market opportunities quickly. A National Science Foundation report found that entrepreneurs and small firms are six times as effective as larger firms in utilizing research and development expenditures to generate new

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have also indicated that entrepreneurs and small, innovative firms rely more heavily upon the patent system than larger enterprises. Larger companies are said to possess alternative means for achieving a proprietary or property-like interest in a particular technology. For example, trade secrecy, ready access to markets, trademark rights, speed of development, and consumer goodwill may to some degree act as substitutes to the patent system.[53] However, individual inventors and small firms often do not have these mechanisms at their disposal. As a result, the patent system may enjoy heightened importance with respect to these enterprises.[54]

In recent years, universities have also become more full-fledged participants in the patent system. This trend has been attributed to the Bayh-Dole Act,[55] a federal statute that allowed universities and other government contractors to retain patent title to inventions developed with the benefit of federal funding.[56] In recent years there has reportedly "been a dramatic increase in academic institutions' investments in technology licensing activities."[57] This increase has been reflected in the growth in the number of patents held by universities, the number of universities with technology transfer offices, and the amount of patent-based licensing revenues that these offices have raised.[58]

The U.S. patent system has long acknowledged the role, and particular needs, of independent inventors, small firms, and universities. For example, the patent statute calls for each of these entities to receive a 50% discount on many USPTO fees.[59] As the USPTO is currently entirely funded by the fees it charges its users,[60] this provision effectively calls for larger institutions to subsidize the patent expenditures of their smaller competitors.

Beyond potentially diminished financial resources vis-a-vis larger concerns, however, observers have disagreed over whether independent inventors, small firms,

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[52] (...continued)
products. National Science Board, *Science and Engineering Indicators*, *1993*, (December 8, 1993), 185. Anne Anderson, "Small Businesses Make it Big in the SBIR Program," *New Technology Week* (June 6, 1998), 2.

[53] Sally Wyatt & Gilles Y. Bertin, *Multinationals and Industrial Property* 139 (Harvester 1988).

[54] J. Douglas Hawkins, "Importance and Access of International Patent Protection for the Independent Inventor," 3 *University of Baltimore Intellectual Property Journal* (1995), 145.

[55] P.L. 96-517, 94 Stat. 2311 (codified at 35 U.S.C. §§ 200-212).

[56] CRS Report RL32076, *The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology*, by Wendy H. Schacht.

[57] Josh Lerner, "Patent Policy Innovations: A Clinical Examination," 53 *Vanderbilt Law Review* (2000), 1841.

[58] *See* Arti K. Rai & Rebecca S. Eisenberg, "Bayh-Dole Reform and the Progress of Biomedicine," 66 *Law and Contemporary Problems* (Winter/Spring 2003), 289.

[59] 35 U.S.C. § 41(g).

[60] CRS Report RS20906, *U.S. Patent and Trademark Office Appropriations Process: A Brief Explanation*, by Wendy H. Schacht.

and universities have particular needs with respect to the patent system, and if so whether those needs should be reflected in patent law doctrines. With respect to the proposed system of "prior user rights,"[61] for example, some observers state that such rights would particularly benefit small entities, which may often lack a sophisticated knowledge of the patent system.[62] Others disagree, stating that smaller concerns rely heavily on the exclusivity of the patent right, and that the adoption of prior user rights would advantage large enterprises.[63] Similar debates have occurred with respect to other patent reform proposals, perhaps reflecting the fact that the community of independent inventors, small firms, and universities is itself a diverse one.

Pending legislation includes a number of provisions that appear to be of particular interest to independent inventors, universities, and small businesses, including a shift to a first-inventor-to-file priority system, prior user rights, and post-grant review procedures.

Different Roles for Patents in Distinct Industries

To a large extent, the patent statute subjects all inventions to the same standards, regardless of the field in which those inventions arose. Whether the invention is an automobile engine, semiconductor, or a pharmaceutical, it is for the most part subject to the same patentability requirements, scope of rights, and term of protection. Both experience and economic research suggest that distinct industries encounter the patent system in different ways, however.[64] As a result, it can be expected that

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[61] Under a rule of "prior user rights," when a conflict exists between an issued patent and an earlier user of the patented technology, the validity of the patent is upheld but the prior user is exempted from infringement. *See* Pierre Jean Hubert, "The Prior User Right of H.R. 400: A Careful Balancing of Competing Interests," 14 *Santa Clara Computer and High Technology Law Journal* (1998), 189. Prior user rights are discussed further in this report below.

[62] *See* Gary L. Griswold & F. Andrew Ubel, "Prior User Rights — A Necessary Part of a First-to-File System," 26 *John Marshall Law Review* (1993), 567.

[63] *See* David H. Hollander, Jr., "The First Inventor Defense: A Limited Prior User Right Finds Its Way Into U.S. Patent Law," 30 *American Intellectual Property Law Association Quarterly Journal* (2002), 37 (noting the perception that prior user rights favor large, well-financed corporations).

[64] In particular, economic research suggests that different industries attach widely varying values to patents. For example, one study of the aircraft and semiconductor industries suggested that lead time and the strength of the learning curve were superior to patents in capturing the value of investments. In contrast, members of the drug and chemical industries attached a higher value to patents. Differences in the perception of the patent system have been attributed to the extent to which patents introduced significant duplication costs and times for competitors of the patentee. Richard C. Levin, Alvin K. Klevorick, Richard R. Nelson, and Sidney G. Winter, "Appropriating the Returns for Industrial Research and Development," Brookings Papers on Economic Activity, 1987, in *The Economics of Technical Change*, eds. Edwin Mansfield and Elizabeth Mansfield (Vermont, Edward Elgar Publishing Co., 1993), 254.

particular industries will react differently to the various patent reform proposals currently before Congress.[65]

Although broad generalizations should be drawn with care, two industries widely perceived as viewing the patent system in different ways are the pharmaceutical and software sectors. Within the pharmaceutical industry, individual patents are perceived as critical to a business model that provides life-saving and life-enhancing medical innovations, but eventually allows members of the public access to medicines at low cost. In particular, often only a handful, and sometimes only one or two patents cover a particular drug product. Patents are also judged to be crucial to the pharmaceutical sector because of the relative ease of replicating the finished product. For example, while it is expensive, complicated, and time consuming to duplicate an airplane, it is relatively simple to perform a chemical analysis of a pill and reproduce it.[66]

In contrast to the pharmaceutical field, the nature of software development is such that innovations are typically cumulative and new products often embody numerous patentable inventions. This environment has led to what has been described as a

> poor match between patents and products in the [software] industry: it is difficult to patent an entire product in the software industry because any particular product is likely to include dozens if not hundreds of separate technological ideas.[67]

This situation may be augmented by the multiplicity of patents often associated with a finished computer product that utilizes the software. It is not uncommon for thousands of different patents (relating to hardware and software) to be embodied in one single computer. In addition, ownership of these patents may well be fractured among hundreds or thousands of different individuals and firms.

In summary, then, the patent laws provide a "one size fits all" system, where all inventions are subject to the same requirements of patentability and scope of protection, regardless of the technical field in which they arose. Innovators in different fields nonetheless have varying experiences with the patent system. These discrepancies, among others, lead to the expectation that distinct industries may react differently to the various patent reform proposals presently considered by Congress.

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[65] For additional discussion on this issue see CRS Report RL33367, *Patent Reform: Issues in the Biomedical and Software Industries*, by Wendy H. Schacht.

[66] Federic M. Scherer, "The Economics of Human Gene Patents," 77 *Academic Medicine* (December 2002), 1350.

[67] Mann, *supra*, at 979.

Proposed Legislative Initiatives

First Inventor to File

Basic Concepts. Pending legislation would alter the U.S. patent priority rule from the current "first-to-invent" principle to the "first-inventor-to-file" principle.[68] Within the patent law, the priority rule addresses the circumstance where two or more persons independently develop the identical or similar invention at approximately the same time. In such cases the patent law must establish a rule as to which of these inventors obtains entitlement to a patent.[69]

Under current U.S. law, when more than one patent application is filed claiming the same invention, the patent will be awarded to the applicant who was the first inventor in fact. This conclusion holds even if the first inventor was not the first person to file a patent application directed towards that invention.[70] Within this "first-to-invent" system,[71] the timing of real-world events, such as the date a chemist conceived of a new compound or a machinist constructed a new engine, is of significance.

In every patent-issuing nation except the United States, priority of invention is established by the earliest effective filing date of a patent application disclosing the claiming invention.[72] Stated differently, the inventor who first filed an application at the patent office is presumptively entitled to the patent. Whether or not the first applicant was actually the first individual to complete the invention in the field is irrelevant. This priority system follows the "first-inventor-to file" principle.

A simple example illustrates the distinction between these priority rules. Suppose that inventor A synthesizes a new chemical compound on August 1, 2007, and files a patent application on November 1, 2007, claiming that compound. Suppose further that inventor B independently invents the same compound on September 1, 2007, and files a patent application on October 1, 2007. Inventor A would be awarded the patent under the first-to-invent rule, while Inventor B would obtain the patent under the first-inventor-to-file principle.

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[68] This provision appears in § 3 of both bills.

[69] *See* Roger E. Schechter & John R. Thomas, *Principles of Patent Law* § 1.2.5 (2d ed. 2004).

[70] In addition, the party that was the first to invent must not have abandoned, suppressed or concealed the invention. 35 U.S.C. § 102(g)(2).

[71] *See* Charles E. Gholz, "First-to-File or First-to-Invent?," 82 *Journal of the Patent and Trademark Office Society* (2000), 891.

[72] *See* Peter A. Jackman, "Adoption of a First-to-File System: A Proposal," 26 *University of Baltimore Law Review* (1997), 67.

Under the current U.S. first-to-invent rule, priority disputes may be resolved via "interference" proceedings conducted at the USPTO.[73] An interference is a complex administrative proceeding that may result in the award of priority to one of its participants. These proceedings are not especially common. One estimate concludes that less than one-quarter of one percent of patents are subject to an interference.[74] This statistic may mislead, however, because the expense of interference cases may result in their use only for the most commercially significant inventions.

By shifting to a first-inventor-to-file priority rule, the House and Senate bills would eliminate the need for interference proceedings. Instead, the applicant with the earliest filing date, rather than the first individual to have created the invention, would have been eligible for the patent. Notably, the proposed bills would not render a patent applicant's actual date of invention completely irrelevant. As this report discusses immediately below, the invention date would have remained pertinent with respect to the so-called grace period. In this respect, these legislative proposals depart from first-inventor-to-file practices in other patent-issuing countries.

Policy Considerations. The relative merits of the first-to-invent and first-inventor-to-file priority principles have been the subject of a lengthy debate within the patent community. Supporters of the current first-to-invent principle in part assert that the first-inventor-to-file system would create inequities by sponsoring a "race to the Patent Office." They are also concerned that the first-to-file system would encourage premature and sketchy technological disclosures in hastily-filed patent applications.[75]

Supporters of the first-inventor-to-file principle in part assert that it provides a definite, readily determined and fixed date of priority of invention, which would lead to greater legal certainty within innovative industries. They also contend that the first-inventor-to-file principle would decrease the complexity, length and expense associated with current USPTO interference proceedings. Rather than being caught up in lengthy interference proceedings in an attempt to prove dates of inventive activity that occurred many years previously, they assert, inventors could continue to go about the process of innovation. Supporters also observe that informed U.S. firms already organize their affairs on a first-inventor-to-file basis in order to avoid forfeiture of patent rights abroad.[76]

The effect of a shift to the first-inventor-to-file rule upon individual inventors, small firms, and universities has been debated. Some observers state that such entities often possess fewer resources and wherewithal than their larger competitors,

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[73] 35 U.S.C. § 135.

[74] *See* Clifford A. Ulrich, "The Patent Systems Harmonization Act of 1992: Conformity at What Price?," 16 *New York Law School Journal of International and Comparative Law* (1996), 405.

[75] *See* Coe A. Bloomberg, "In Defense of the First-to-Invent Rule," 21 *American Intellectual Property Law Quarterly Journal* (1993), 255.

[76] *See* Bernarr A. Pravel, "Why the United States Should Adopt the First-to-File System for Patents," 22 *St. Mary's Law Journal* (1991), 797.

and thus are less able to prepare and file patent applications quickly. Others disagree, stating that smaller concerns are more nimble than larger ones and thus better able to submit applications promptly. They also point to the availability of provisional applications,[77] asserting that such applications allow small entities to secure priority rights readily without a significant expenditure of resources. A quantitative study of interference proceedings by Gerald Mossinghoff, a former Commissioner of the USPTO, also suggested that the first-to-invent rule neither advantaged nor disadvantaged small entities vis-a-vis larger enterprises.[78]

The role of the U.S. Constitution is sometimes debated within the context of the patent priority principle. Article I, Section 8, clause 8 of the Constitution provides Congress with the authority to award "inventors" with exclusive rights. Some observers suggest this language suggests, or possibly even mandates, the current first-to-invent system. Others conclude that because the first-inventor-to-file only awards patents to individuals who actually developed the invention themselves, rather than derived it from another, this priority system is permissible under the Constitution.[79]

In weighing the validity of this position, it should be noted that under well-established U.S. law, the first-inventor-in-fact does not always obtain entitlement to a patent. If, for example, a first-inventor-in-fact maintained his invention as a trade secret for many years before seeking patent protection, he may be judged to have "abandoned, suppressed or concealed" the invention.[80] In such a case a second-inventor-in-fact may be awarded a patent on that invention. Courts have reasoned that this statutory rule encourages individuals to disclose their inventions to the public promptly, or give way to an inventor who in fact does so.[81] As the first-inventor-to-file rule acts in a similar fashion to this longstanding patent law principle, conflict between this rule and the Constitution appears unlikely.

Notably, a first-inventor-to-file priority rule does not permit one individual to copy another's invention and then, by virtue of being the first to file a patent application, be entitled to a patent. All patent applicants must have originated the invention themselves, rather than derived it from another.[82] In order to police this requirement, both bills would provide for "inventor's rights contests" that would allow the USPTO to determine which applicant is entitled to a patent on a particular invention.[83]

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[77] 35 U.S.C. § 111(b).

[78] Gerald J. Mossinghoff, "The U.S. First-to-Invent System Has Provided No Advantage to Small Entities," 84 *Journal of the Patent and Trademark Office Society* (2002), 425.

[79] *See generally* Charles R.B. Marcedo, "First-to-File: Is American Adoption of the International Standard in Patent Law Worth the Price?," 18 *American Intellectual Property Law Association Quarterly Journal* (1990), 193.

[80] 35 U.S.C. § 102(g)(2).

[81] *See Del Mar Engineering Labs. v. United States*, 524 F.2d 1178 (Ct. Cl. 1975).

[82] 35 U.S.C. § 101.

[83] H.R. 1908, § 3(i); S. 1145, § 3(i).

Grace Period

Pending legislative proposals would retain the existing one-year "grace period" enjoyed by U.S. inventors. Current U.S. patent law essentially provides inventors with a one-year period to decide whether patent protection is desirable, and, if so, to prepare an application. Specified activities that occur before the "critical date" — patent parlance for the day one year before the application was filed — will prevent a patent from issuing.[84] If, for example, an entrepreneur first discloses an invention by publishing an article in a scientific journal, she knows that she has one year from the publication date in which to file a patent application. Importantly, uses, sales, and other technical disclosures by third parties will also start the one-year clock running. As a result, inventors have a broader range of concerns than merely their own activities.[85]

Suppose, for example, that an electrical engineer files a patent application claiming a new capacitor on February 1, 2007. While reviewing the application, a USPTO examiner discovers a October 1, 2005, journal article disclosing the identical capacitor. Because the article was published prior to the critical date of February 1, 2006, that publication will prevent or "bar" the issuance of a patent on that capacitor.

If a relevant reference is first publicly disclosed during the one-year grace period — that is to say, after the critical date but prior to the filing date — the legal situation is more complex. Under current law, patent applicants may "antedate" such a reference by demonstrating that they had actually invented the subject matter of their application prior to the date of the reference. If the applicant can make such a showing, then the reference cannot ordinarily be used to defeat the patentability of the invention.

As an illustration of this procedure, suppose that an inventor files a patent application directed to a polymer on February 1, 2007. Suppose further that the USPTO examiner discovers that a textbook published on January 1, 2007, describes the same polymer that is claimed in the application.[86] Because the textbook was published subsequent to the critical date of February 1, 2006, it does not absolutely bar the application. In order to obtain a patent, however, the applicant must nonetheless demonstrate that he invented the polymer prior to January 1, 2007, the date the textbook was published. The applicant might submit copies of his laboratory notebook, for example, or submit a sworn declaration in order to make this showing.[87]

Both H.R. 1908 and S. 1145 would retain current patent law rules with respect to the grace period. As a result, an inventor would still have been allowed to "antedate" prior art by showing that she invented the subject matter of the application

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[84] 35 U.S.C. § 102(b).

[85] Schechter & Thomas, *supra*, at § 4.3.1.

[86] In addition, the textbook must be attributable to someone other than the patent applicant. *See* 35 U.S.C. § 102(a).

[87] 37 C.F.R. § 1.131.

prior to the date of the reference.[88] This approach would enjoy the advantage of maintaining longstanding U.S. rules regarding the patent-defeating effect of references that first become publicly available during the grace period. It might also benefit university professors, small firms, and other entities that may lack the wherewithal to file patent applications promptly.

On the other hand, these proposals would mean that the U.S. shift from a "first-to-invent" system to a "first-inventor-to-file" system would be incomplete. Because an applicant's date of invention would remain relevant, patentability decisions would be more complex and less certain than in the first-inventor-to-file systems employed by all other patent-issuing states. Such an approach also would not fully harmonize U.S. law with those of other nations.

Elimination of Sections 102(c), (d) and (f)

Pending legislation would eliminate three provisions of the Patent Act, paragraphs (c), (d), and (f) of Section 102. Section 102(c) does not allow an applicant to obtain a patent when he "has abandoned the invention." This statute does not refer to disposal of the invention itself, however, but instead to the intentional surrender of an invention *to the public*. Older Supreme Court opinions instruct that abandonment may occur where an inventor expressly dedicates it to the public, through a deliberate relinquishment or conduct evidencing an intent not to pursue patent protection.[89] The circumstances must be such that others could reasonably rely upon the inventor's renunciation.[90] Perhaps because few individuals expressly cede their patentable inventions to the public without seeking compensation, there are few modern judicial opinions that consider 35 U.S.C. § 102(c) in any meaningful way. In addition, the generally applicable principle of equitable estoppel may apparently be used to obtain the same result.[91]

Like Section 102(c), Section 102(d) of the Patent Act is reportedly little-used.[92] 35 U.S.C. 102(d) bars a U.S. patent when (1) an inventor files a foreign patent application more than twelve months before filing the U.S. application, and (2) a foreign patent results from that application prior to the U.S. filing date. Suppose that an inventor files an application at a foreign patent office on May 25, 2006. The foreign application matures into a granted foreign patent on August 1, 2007. If the inventor has not filed his patent application at the USPTO as of August 1, 2007, the date of the foreign patent grant, any patent application that the inventor subsequently filed in the United States would be defeated.

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[88] 35 U.S.C. § 102(a).

[89] *See* Beedle v. Bennett, 122 U.S. 71 (1887).

[90] *See* Mendenhall v. Astec Indus., Inc., 13 USPQ2d 1913, 1937 (E.D. Tenn. 1988), *aff'd*, 887 F.2d 1094 (Fed. Cir. 1989).

[91] *See generally* A.C. Auckerman & Co. v. R.L. Chaides Construction Co., 960 F.2d 1020 (Fed. Cir. 1992).

[92] Schechter & Thomas, *supra*, at § 4.3.8.

35 U.S.C. § 102(d) is intended to encourage the prompt filing of patent applications in the United States. As the Patent Office Commissioner explained in 1870:

> The intention of [C]ongress obviously was to obtain for this country the free use of the inventions of foreigners as soon as they became free abroad. This is indicated by the use of the phrase, 'first patented, or caused to be patented, in a foreign country,' for it was presumable that American citizens would obtain their first patent here, while a foreigner would first patent his invention in his own country. The statute was designed to prevent a foreigner from spending his time and capital in the development of an invention in his own country, and then coming to this country to enjoy a further monopoly, when the invention had become free at home. The result of such a course would be that while the foreign country was developing the invention and enjoying its benefits, its use could be interdicted here; while, if the term of the monopoly could be further extended here, the market could be controlled long after the foreign nation was prepared to flood this country with the unpatented products of the patented process.[93]

Section 102(d) has been subject to critical commentary. Because inventors may choose to file a patent application only in the United States, the policy goal of assuring that the U.S. market will become patent-free contemporaneously with foreign markets may not be well-served by this provision. In addition, 35 U.S.C. § 102(d) effectively acts against foreign, rather than U.S.-based inventors, as domestic inventors ordinarily file at the USPTO first before seeking rights overseas. Some commentators have suggested that 35 U.S.C. § 102(d) violates the spirit, if not the letter, of U.S. international treaty obligations, which generally impose an obligation of national treatment with respect to intellectual property matters.[94]

Finally, the House and Senate bills (H.R. 1908 and S. 1145) would also eliminate current 35 U.S.C. § 102(f), which states that a person may obtain a patent unless "he did not himself invent the subject matter sought to be patented." This proposed amendment would not alter the requirement that only an actual inventor may obtain a patent, which is also stated by 35 U.S.C. § 101.[95]

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[93] Bate Refrigerating Co. v. Sulzberger, 157 U.S. 1, 27 (1895) (quoting Ex parte Mushet, 1870 Comm'r December 106, 108 (1870)).

[94] *See* Donald S. Chisum, "Foreign Activity: Its Effect on Patentability under United States Law," 11 *International Review of Industrial Property & Copyright Law* (1980), 26.

[95] *See* Schechter & Thomas, *supra*, at § 4.4.4. This amendment may potentially alter the holding in *Oddzon Products Inc. v. Just Toys Inc.*, 122 F.3d 1396 (Fed. Cir. 1997), that subject matter that qualifies as prior art only under 35 U.S.C. § 102(f) may be used for a nonobviousness analysis under 35 U.S.C. § 103(a). Further discussion of this issue may be found at CRS Report RL33063, *Intellectual Property and Collaborative Research*, by John R. Thomas.

Inventor's Oath

Under current U.S. law, a patent application must be filed by the inventor — that is to say, the natural person or persons who developed the invention.[96] Under Section 115 of the Patent Act, each applicant must also submit an oath or declaration stating that he believes himself to be the "original and first inventor" of the subject matter for which he seeks a patent. Section 118 of the Patent Act allows a few exceptions to this general rule. If an inventor cannot be located, or refuses to perform his contractual obligation to assign an invention to his employer, then the employer may file the patent application in place of the inventor.

The House and Senate bills (H.R. 1908 and S. 1145) would incorporate the exceptions found in current Section 118 into Section 115 of the Patent Act.[97] This proposal appears to be primarily technical in nature, although a few changes between the proposed statute and present law exist. First, the pending legislation would require inventors to declare only that they are the "original inventor" — rather than the "original and first inventor" — in keeping with the proposed shift to a first-inventor-to-filed priority system. Second, the pending legislation would allow an "individual who is under an obligation of assignment for patent [to] include the required statements ... in the assignment executed by the individual, in lieu of filing such statements separately." This provision comports with the allowance of the filing of patent applications by employers and other assignees of patent rights, a topic this paper addresses next.

Assignee Filing

As noted previously, current U.S. law for the most part requires patent applications to be filed by inventors themselves. In other words, the natural person or persons who developed the invention must submit the application.[98] This rule applies even where the invention was developed by individuals in their capacity as employees. Even though rights to the invention have usually been contractually assigned to an employer, for example, the actual inventor, rather than the employer, must be the one that applies for the patent.

Pending legislation would instead stipulate that a "person to whom the inventor has assigned or is under an obligation to assign the invention may make an application for patent."[99] Individuals who otherwise make a showing of a "sufficient proprietary interest in the matter" may also apply for a patent on behalf of the inventor upon a sufficient show of proof of the pertinent facts. Under the proposed legislation, if the USPTO "Director grants a patent on an application filed under this section by a person other than the inventor, the patent shall be granted to the real party in interest and upon such notice to the inventor as the Director considers to be sufficient."

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[96] 35 U.S.C. § 111.

[97] These provisions are found in § 4(a) of both bills.

[98] 35 U.S.C. § 111.

[99] This provision appears in § 4(b) of both bills.

Legal reforms allowing assignee filing of patent applications have been discussed for many years. A 1966 Report of the President's Commission on the Patent System recommended this change as a way to simplify formalities of application filing and to avoid delays caused by the need to identify and obtain signatures from each inventor.[100] The 1992 Advisory Commission on Patent Law Reform was also in favor of this change. The 1992 Commission observed that the United States was "the only country which does not permit the assignee of an invention to file a patent application in its own name."[101] In the opinion of the 1992 Commission, assignee filing would appropriately accompany a U.S. shift to a first-inventor-to-file priority system, as the reduction of formalities would allow innovative enterprises to file patent applications more promptly.

The 1992 Commission also reviewed potential undesirable aspects of assignee filing. The Commission noted that patent applications filed by assignees may lack the actual inventor's personal guarantee that the application was properly prepared. In addition, assignee filing might derogate the right of natural persons to their inventions. In the opinion of the Commission, however, the advantages of assignee filing outweighed the disadvantages.[102]

Apportionment of Damages

H.R. 1908 and S. 1145 also address monetary remedies in patent cases. Marketplace realities often render the determination of an appropriate damages award a difficult affair in patent litigation. In some cases, the product or process that is found to infringe may incorporate numerous additional elements beyond the patented invention. For example, the asserted patent may relate to a single component of an audio speaker, while the accused product consists of the entire stereo system. In such circumstances, a court may apply "the entire market value rule," which "permits recovery of damages based upon the entire apparatus containing several features, where the patent-related feature is the basis for consumer demand."[103] On the other hand, if the court determines that the infringing sales were due to many factors beyond the use of the patented invention, the court may apply principles of "apportionment" to reach a just measure of damages for infringement.[104]

Some observers believe that courts have sometimes been overly generous in assessing damages in patent cases. As one commentator asserted:

> [B]road application of the entire market value rule appears to broaden the practical scope of a remedy for patent infringement beyond the legal scope of the patent and despite careful attention to a precise and proper construction of claim

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[100] President's Commission on the Patent System, *"To Promote the Progress of ... Useful Arts" in an Age of Exploding Technology* (1966).

[101] Advisory Commission on Patent Reform, *A Report to the Secretary of Commerce* (August 1992), 179.

[102] *Ibid.*

[103] State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed. Cir. 1989).

[104] Dowagiac Mfg. Co. v. Minn. Moline Plow Co., 235 U.S. 641 (1915).

> terms. Further, although the entire market value rule was conceived to ensure a proper level of damages for the infringement by recognizing a patent's value that went beyond sales of a single product, the courts' abandonment of a meaningful "basis of consumer" demand test requires an infringer to pay damages for an entire system, despite that the patent has been issued on only a narrow piece that has little market impact on sales of unpatented components. Similarly, failing to provide subsequent inventors with clear notice of their potential liability by uneven application of the entire market value rule may chill innovation and interfere with the public notice requirements on which the patent laws depend. Overcompensating initial inventors and over-deterring subsequent inventors interferes with the balance sought to be struck by proper claim interpretation.[105]

Other commentators disagree, believing that current case law appropriately incorporates apportionment principles. These commentators also believe that the proposed reforms would diminish the value of the patent right to the detriment of the innovation environment of the United States. One observer states:

> Courts have had little difficulty applying the current law on apportionment and the entire market value rule to reach just and reasonable findings on assessment of damages ....
>
> Patent infringement damages ... are the culmination of the courts' long and careful efforts to adhere to the statutory requirement to provide damages adequate to compensate for the infringement of an inventor's patent. Apportionment recognizes the reality that consumer demand for an infringing product or process may in part spring from contributions from the infringer, and to reward the inventor for those contributions is inappropriate. On the other hand, the entire market value rule recognizes the reality that even complex assemblies may owe their marketability to a patented feature — a feature that drives consumer demand for the overall assembly. In those cases, it is entirely appropriate to reward the inventor according to the worth of her invention. To do otherwise would only encourage those who trespass and discourage inventors from making their intellectual efforts available to the public. The courts can be and are flexible in assessing each case on its merits, and they can reliably determine the correct royalty base and rate that will award "damages adequate to compensate for the infringement."[106]

Views differ on the appropriateness of this reform. Some believe that current damages standards have resulted in the systemic overcompensation of patent owners. Such overcompensation may place unreasonable royalty burdens upon producers of high technology products, ultimately impeding the process of technological innovation and dissemination that the patent system is meant to foster. Others believe that current case law appropriately accounts for apportionment concerns. These observers are concerned that this reform might overly restrict damages in patent cases, thereby discouraging voluntary licensing and promoting infringement of patent rights. Limited damage awards for patent infringement might prevent

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[105] Amy L. Landers, "Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law," 46 *Santa Clara Law Review* (2006), 364-65.

[106] William C. Rooklidge, "Reform of the Patent Laws: Forging Legislation Addressing Disparate Interests," 88 *Journal of the Patent and Trademark Office Society* (2006), 17-18, 20 (quoting 35 U.S.C. § 284).

innovators from realizing the value of their inventive contributions, a principal goal of the patent system.

Willful Infringement

H.R. 1908 and S. 1145 would also reform the law of willful infringement. The patent statute currently provides that the court "may increase the damages up to three times the amount found or assessed."[107] An award of enhanced damages, as well as the amount by which the damages will be increased, is committed to the discretion of the trial court.[108] Although the statute does not specify the circumstances in which enhanced damages are appropriate, the courts most commonly award them when the infringer acted in blatant disregard of the patentee's rights. This circumstance is termed "willful infringement."[109]

Courts will not ordinarily enhance damages due to willful infringement if the adjudicated infringer did not know of the patent until charged with infringement in court, or if the infringer acted with the reasonable belief that the patent was not infringed or that it was invalid. Federal Circuit decisions emphasize the duty of someone with actual notice of a competitor's patent to exercise due care in determining if his acts will infringe that patent. A common way to fulfill this obligation is to obtain competent legal advice before commencing, or continuing, activity that may infringe another's patent.[110]

Prior to 2004, the Federal Circuit held that when an accused infringer invoked the attorney-client or work-product privilege, courts should be free to reach an adverse inference that either (1) no opinion had been obtained or (2) an opinion had been obtained and was contrary to the infringers's desire to continue practicing the patented invention.[111] However, in its decision in *Knorr-Bremse Systeme fuer Nutzfahrzeuge GmbH v. Dana Corp.*,[112] the Federal Circuit expressly overturned this principle. The Court of Appeals further stressed that the failure to obtain legal advice did not occasion an adverse inference with respect to willful infringement either. Following the *Knorr-Bremse* opinion, willful infringement determinations are based upon "the totality of circumstances, but without the evidentiary contribution or presumptive weight of an adverse inference that any opinion of counsel was or would have been unfavorable."[113]

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[107] 35 U.S.C. § 284.

[108] *See* Read Corp. v. Portec, Inc., 970 F.2d 816, 826 (Fed. Cir. 1992).

[109] *See* Beatrice Foods Co. v. New England Printing & Lithographing Co., 923 F.2d 1576, 1578 (Fed. Cir. 1991).

[110] *See, e.g.,* Jon E. Wright, "Willful Patent Infringement and Enhanced Damages — Evolution and Analysis," 10 *George Mason Law Review* (2001), 97.

[111] *See, e.g.,* Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1572 (Fed. Cir. 1988).

[112] 383 F.3d 1337 (Fed. Cir. 2004).

[113] *Ibid.* at 1341.

Patent law's willful infringement doctrine has proven controversial. Some observers believe that this doctrine ensures that patent rights will be respected in the marketplace. Critics of the policy believe that the possibility of trebled damages discourages individuals from reviewing issued patents. Out of fear that their inquisitiveness will result in multiple damages, innovators may simply avoid looking at patents until they are sued for infringement. To the extent this observation is correct, the law of willful infringement discourages the dissemination of technical knowledge, thereby thwarting one of the principal goals of the patent system. Fear of increased liability for willful infringement may also discourage firms from challenging patents of dubious validity. Consequently some have argued that the patent system should shift to a "no-fault" regime of strictly compensatory damages, without regard to the state of mind of the adjudicated infringer.[114]

The House and Senate bills would add several clarifications and changes to the law of willful infringement. First, a finding of willful infringement would be appropriate only where (1) the infringer received specific written notice from the patentee and continued to infringe after a reasonable opportunity to investigate; (2) the infringer intentionally copied from the patentee with knowledge of the patent; or (3) the infringer continued to infringe after an adverse court ruling. Second, willful infringement cannot be found where the infringer possessed an informed, good faith belief that its conduct was not infringing. Finally, a court may not determine willful infringement before the date on which the court determines that the patent is not invalid, enforceable, and infringed.[115]

Prior User Rights

H.R. 1908 and S. 1145 would expand the applicability of a "first inventor defense" established by the American Inventors Protection Act of 1999.[116] As currently found at 35 U.S.C. § 273, an earlier inventor of a "method of doing or conducting business" that was later patented by another may claim a defense to patent infringement in certain circumstances. Both the House and Senate bills would broaden this defense by allowing it to apply with respect to any patented subject matter.

The impetus for this provision lies in the rather complex relationship between the law of trade secrets and the patent system. Trade secrecy protects individuals from misappropriation of valuable information that is useful in commerce. One reason an inventor might maintain the invention as a trade secret rather than seek patent protection is that the subject matter of the invention may not be regarded as patentable. Such inventions as customer lists or data compilations have traditionally been regarded as amenable to trade secret protection but not to patenting.[117] Inventors might also maintain trade secret protection due to ignorance of the patent

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[114] *See generally* Schechter & Thomas, *supra*, at § 9.2.5.

[115] This provision appears in § 5(b) of both bills.

[116] This provision also appears in § 5(b) of both bills, although the more appropriate heading would appear to be § 5(c).

[117] Restatement of Unfair Competition § 39.

system or because they believe they can keep their invention as a secret longer than the period of exclusivity granted through the patent system.[118]

The patent law does not favor trade secret holders, however. Well-established patent law provides that an inventor who makes a secret, commercial use of an invention for more than one year prior to filing a patent application at the USPTO forfeits his own right to a patent.[119] This policy is based principally upon the desire to maintain the integrity of the statutorily prescribed patent term. The patent law grants patents a term of twenty years, commencing from the date a patent application is filed.[120] If the trade secret holder could make commercial use of an invention for many years before choosing to file a patent application, he could disrupt this regime by delaying the expiration date of his patent.

On the other hand, settled patent law principles established that prior secret uses would not defeat the patents of later inventors.[121] If an earlier inventor made secret commercial use of an invention, and another person independently invented the same technology later and obtained patent protection, then the trade secret holder could face liability for patent infringement. This policy is based upon the reasoning that once issued, published patent instruments fully inform the public about the invention, while trade secrets do not. As between a subsequent inventor who patented the invention, and thus had disclosed the invention to the public, and an earlier trade secret holder who had not, the law favored the patent holder.

An example may clarify this rather complex legal situation. Suppose that Inventor A develops and makes commercial use of a new manufacturing process. Inventor A chooses not to obtain patent protection, but rather maintains that process as a trade secret. Many years later, Inventor B independently develops the same manufacturing process and promptly files a patent application claiming that invention. In such circumstances, Inventor A's earlier, trade secret use does not prevent Inventor B from procuring a patent. Furthermore, if the USPTO approves the patent application, then Inventor A faces infringement liability should Inventor B file suit against him.

The American Inventors Protection Act of 1999 somewhat modified this principle. That statute in part provided an infringement defense for an earlier inventor of a "method of doing or conducting business" that was later patented by another. By limiting this defense to patented methods of doing business, Congress responded to the 1998 Federal Circuit opinion in *State Street Bank and Trust Co. v. Signature Financial Group*.[122] That judicial opinion recognized that business

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[118] David D. Friedman, "Some Economics of Trade Secret Law," 5 *Journal of Economic Perspectives* (1991), 61, 64.

[119] 35 U.S.C. § 102(b). *See* Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts, 153 F.2d 516 (2d Cir. 1946).

[120] 35 U.S.C. § 154.

[121] W.L. Gore & Associates v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983).

[122] 149 F.3d 1368 (Fed. Cir. 1998).

methods could be subject to patenting, potentially exposing individuals who had maintained business methods as trade secrets to liability for patent infringement.

Again, an example may aid understanding of the first inventor defense. Suppose that Inventor X develops and exploits commercially a new method of doing business. Inventor X maintains his business method as a trade secret. Many years later, Inventor Y independently develops the same business method and promptly files a patent application claiming that invention. Even following the enactment of the American Inventors Protection Act, Inventor X's earlier, trade secret use would not prevent Inventor Y from procuring a patent. However, should the USPTO approve Inventor Y's patent application, and should Inventor Y sue Inventor X for patent infringement, then Inventor X may potentially claim the benefit of the first inventor defense. If successful,[123] Inventor X would enjoy a complete defense to infringement of Inventor Y's patent.

As originally enacted, the first inventor defense applied only to patents claiming a "method of doing or conducting business." Although the American Inventors Protection Act did not define this term, the first inventor defense was arguably a focused provision directed towards a specific group of potential patent infringers. H.R. 1908 and S. 1145 would expand upon the first inventor defense by allowing it to apply to all patented subject matter.[124] By removing current restrictions referring to methods of doing business, both the House and Senate bills would effectively introduce "prior user rights" into U.S. law.

A feature of many foreign patent regimes, prior user rights are often seen as assisting small entities, which may lack the sophistication or resources to pursue patent protection. The provision of prior user rights would allow such entities to commercialize their inventions when they used the subject matter of the invention prior to the patent's filing date, even when they themselves did not pursue patent rights. For this reason, a more expansive prior user rights regime has also been tied to adoption of the first-inventor-to-file priority system.[125]

Proponents of prior user rights also assert that the proposed legislation would support investment in technological innovation. Under this view, firms would not longer be required to engage in extensive defensive patenting, but rather would be

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[123] As presently codified at 35 U.S.C. § 273, the first inventor defense is subject to a number of additional qualifications. First, the defendant must have reduced the infringing subject matter to practice at least one year before the effective filing date of the application. Second, the defendant must have commercially used the infringing subject matter prior to the effective filing date of the patent. Finally, any reduction to practice or use must have been made in good faith, without derivation from the patentee or persons in privity with the patentee.

[124] Both bills would also remove the requirement that the prior use be reduced to practice at least one year before the effective filing date of such patent. Under the proposed legislation, the defense would apply where reduction to practice occurred prior to the patent's filing date.

[125] *See* Gary L. Griswold & F. Andrew Ubel, "Prior User Rights — A Necessary Part of a First-to-File System," 26 *John Marshall Law Review* (1993), 567.

able to devote these resources to further innovation. In addition, some commentators observe that many U.S. trading partners, including Germany and Japan, currently allow prior user rights. As a result, U.S. firms that obtain patent rights in certain foreign nations may face the possibility that a foreign firm may enjoy prior user rights in that invention. Foreign firms with U.S. patents do not currently face this possibility with respect to U.S. firms, however. Under this view, adoption of prior user rights in the United States would "level the playing field" for U.S. industry.[126]

Proposals to adopt prior user rights have attracted critics, however. Some observers believe that this regime would benefit large corporations at the expense of smaller ones. Others believe that individuals who are aware that they can rely upon prior user rights will be less likely to disclose their inventions through the patent system. Still others have stated that prior user rights reduce the value of patents and therefore make innovation less desirable. The role of the U.S. Constitution is sometimes debated within this context as well. Article I, Section 8, clause 8 of the Constitution provides Congress with the authority to award "inventors the exclusive right to their ... discoveries." Some commentators suggest this language suggests, or possibly requires, a system of exclusive patent rights, rather than an interest that may be mitigated by prior user rights.[127]

Post-Issuance Review Proceedings

Pending legislation in the 110th Congress would introduce post-grant review proceedings into U.S. patent law. Post-issuance review proceedings, which are common in foreign patent regimes, are patent revocation proceedings that are usually administered by authorities from the national patent office. Typically known as "oppositions," these proceedings often involve a wide range of potential invalidity arguments and are conducted through adversarial hearings that resemble courtroom litigation.

Although the U.S. patent system does not currently include full-fledged post-grant review proceedings in the manner of an opposition, the U.S. patent system has incorporated a so-called reexamination proceeding since 1981. Under the reexamination statute, any individual, including the patentee, a competitor, and even the USPTO Director, may cite a prior art patent or printed publication to the USPTO. If the USPTO determines that this reference raises a "substantial new question of patentability" with respect to an issued patent, then it will essentially reopen prosecution of the issued patent.

Traditional reexamination proceedings are conducted in an accelerated fashion on an *ex parte* basis. Following the American Inventors Protection Act of 1999, an *inter partes* reexamination allows the requester to participate more fully in the proceedings through the submission of arguments and the filing of appeals. Either

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[126] Paul R. Morico, "Are Prior User Rights Consistent with Federal Patent Policy?: The U.S. Considers Legislation to Adopt Prior User Rights," 78 *Journal of the Patent and Trademark Office Society* (1996), 572.

[127] *See* Robert L. Rohrback, "Prior User Rights: Roses or Thorns?," 2 *University of Baltimore Intellectual Property Review* (1993), 1.

sort of reexamination may result in a certificate confirming the patentability of the original claims, an amended patent with narrower claims or a declaration of patent invalidity.

Congress intended reexamination proceedings to serve as an inexpensive alternative to judicial determinations of patent validity.[128] Reexamination also allows further access to the legal and technical expertise of the USPTO after a patent has issued.[129] However, some commentators believe that reexamination proceedings have been employed only sparingly and question their effectiveness.[130] The proposed bills each call for the USPTO to submit to Congress "a study of the effectiveness and efficiency of the different forms of proceedings available under title 35, United States Code, for the reexamination of patents" three years after the date the legislation is enacted.[131]

Some analysts have expressed concern that potential requesters are discouraged from commencing *inter partes* reexamination proceedings due to a statutory provision that limits their future options. In order to discourage abuse of these proceedings, the *inter partes* reexamination statute provides that third-party participants may not later assert that a patent is invalid "on any ground that [they] raised or could have raised during the inter partes reexamination proceedings."[132] Some observers believe that this potential estoppel effect disinclines potential requesters from use of this post-issuance proceeding. In apparent response to this concern, both pending bills would delete the phrase "or could have raised" from the statute.[133] As a result, *inter partes* reexamination requesters would be limited only with respect to arguments that they actually made before the USPTO.

Pending legislation would create an additional post-issuance proceeding termed a "post-grant review proceeding." The two bills provide that any person other than the patent proprietor may commence this proceeding. The proceeding may begun either within 12 months of the date the patent was issued, at any time the challenger has either "received notice from the patent holder alleging infringement" or is able to establish a "substantial reason" that the "continued existence of the challenged claim causes or is likely to cause the petitioner significant economic harm," or at any time if the patent proprietor so consents.

H.R. 1908 and S. 1145 afford the patent proprietor a single opportunity to amend its patent during the post-grant review proceeding, with further opportunities available with good cause shown. The USPTO would be required to reach a final

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[128] Mark D. Janis, "Inter Partes Reexamination," 10 *Fordham Intellectual Property, Media & Entertainment Law Journal* (2000), 481.

[129] Craig Allen Nard, "Certainty, Fence Building and the Useful Arts," 74 *Indiana Law Journal* (1999), 759.

[130] *See* Schechter & Thomas, *supra*, at § 7.5.4.

[131] This provision appears in § 8 of both bills.

[132] 35 U.S.C. § 315(c).

[133] This provision appears in § 6(b) of both bills.

decision within one year of commencement of the proceeding, with an extension possible of up to six months for good cause shown. Should the patent survive the post-grant review proceeding, the individual who commenced the proceeding, along with his privies, are barred from raising issues that were aired before the USPTO at a later date. The two bills also provide the USPTO Director with authority to establish regulations to govern post-grant review proceedings.

Many observers have called for the United States to adopt a more effective post-grant administrative revocation system in order to provide more timely, lower cost, and more efficient review of issued patents.[134] Such a system could potentially improve the quality of issued patents by weeding out invalid claims. It might also encourage innovative firms to review issued patents soon after they are granted, thereby increasing the opportunity for technology spillovers.[135] However, concerns have arisen over oppositions because they too may be costly, complex, and prone to abuse as a means for harassing patent owners.[136] A successful post-grant review proceeding will require a balancing of these issues.

Publication of Pending Applications

Until recent years, the U.S. patent system maintained pending patent applications in secrecy. The first moment that the public would become aware of the existence of a U.S. patent application was the day the USPTO formally allowed it to issue as a granted patent. This regime advantaged patent applicants because it allowed them to understand exactly what the scope of any allowed claims might be prior to disclosing an invention. Thus, if the applicant was able to maintain the invention that was subject to a patent application as a trade secret, then he could choose between obtaining the allowed patent claims and trade secret status. In addition, because the invention was not disclosed prior to the award of formal patent rights, unscrupulous competitors were discouraged from copying the invention.

However, this secrecy regime has been perceived as imposing costs as well. Others might well engage in duplicative research efforts during the pendency of patent applications, unaware that an earlier inventor had already staked a claim to that technology. This arrangement also allowed inventors to commence infringement litigation on the very day a patent issued, without any degree of notice to other members of the technological community.[137]

Industry in the United States possessed one mechanism for identifying pending U.S. patent applications. Most foreign patent regimes publish all pending patent

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[134] *See* National Research Council of the National Academies, *A Patent System for the 21st Century* (2004), 96.

[135] *Ibid.* at 103.

[136] *See* Mark D. Janis, "Rethinking Reexamination: Toward a Viable Administrative Revocation System for U.S. Patent Law," 11 *Harvard Journal of Law and Technology* (1997), 1.

[137] Schechter & Thomas, *supra*, at § 7.2.6.

applications approximately 18 months after they have been filed.[138] As a result, savvy firms in the United States could review pending applications filed before foreign patent offices, and make an educated guess as to the existence of a corresponding U.S. application. This effort was necessarily inexact, however, particularly as some inventors either lacked the resources, or made the strategic decision, not to obtain patent rights outside the United States.

In enacting the American Inventors Protection Act of 1999, Congress for the first time introduced the concept of pre-grant publication into U.S. law. Since November 29, 2000, U.S. patent applications have been published 18 months from the date of filing, with some exceptions. The most significant of these exceptions applies where the inventor represents that he will not seek patent protection abroad. In particular, if an applicant certifies that the invention disclosed in the U.S. application will not be the subject of a patent application in another country that requires publication of applications 18 months after filing, then the USPTO will not publish the application.[139] As a result, inventors who do not wish to seek foreign patent rights retain the possibility of avoiding pre-grant publication.

H.R. 1908 and S. 1145 would further modify the U.S. pre-grant publication system by effectively calling for all pending applications to be published approximately 18 months after they are filed. In particular, both bills would eliminate the possibility of opting out of pre-grant publication by certifying that a patent will be sought only in the United States.[140]

Pre-Issuance Submissions

Both H.R. 1908 and S. 1145 would expand the ability of members of the public to submit information to the USPTO that is pertinent to pending applications. Under current law, interested individuals may enter a protest against a patent application. The protest must specifically identify the application and be served upon the applicant. The protest must also include a copy and, if necessary, an English translation, of any patent, publication or other information relied upon. The protester also must explain the relevance of each item.[141]

Protest proceedings have traditionally played a small role in U.S. patent practice. Until Congress enacted the American Inventors Protection Act of 1999, the USPTO maintained applications in secrecy. Therefore, the circumstances in which members of the public would learn of the precise contents of a pending patent application were relatively limited. With the USPTO commencing publication of some pending patent applications, protests would seem far more likely. Seemingly aware of this possibility, the 1999 Act provided that the USPTO shall "ensure that no protest or other form of pre-issuance opposition ... may be initiated after publication of the

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[138] John C. Todaro, "Potential Upcoming Changes in U.S. Patent Laws: the Publication of Patent Applications," 36 *IDEA: Journal of Law and Technology* (1996), 309.

[139] 35 U.S.C. § 122(b).

[140] This provision appears in § 9(a) of both bills.

[141] 37 C.F.R. § 1.291.

application without the express written consent of the applicant."[142] Of course, the effect of this provision is to eliminate the possibility of protest in exactly that class of cases where the public is most likely to learn of the contents of a pending application.

Through rulemaking, the USPTO has nonetheless established a limited mechanism for members of the public to submit information they believe is pertinent to a pending, published application. The submitted information must consist of either a patent or printed publication, and it must be submitted within two months of the date the USPTO published the pending application. Nondocumentary information that may be relevant to the patentability determination, such as sales or public use of the invention, will not be considered.[143] In addition, because Congress stipulated that no protest or pre-grant opposition may occur absent the consent of the patent holder, the USPTO has explained that it will not accept *comments* or *explanations* concerning the submitted patents or printed publications. If such comments are attached, USPTO staff will redact them before the submitted documents are forwarded to the examiner.[144]

The proposed legislation would augment the possibility for pre-issuance submissions. Under both the House and Senate bills, any person may submit patent documents and other printed publications to the USPTO for review. Such prior art must be submitted within the later date of either (1) the date the USPTO issues a notice of allowance to the patent applicant; or (2) either six months after the date of pre-grant publication of the application, or the date of the rejection of any claim by the USPTO examiner. Such a submission must include "a concise description of the asserted relevance of each submitted document."[145]

Most observers agree that ideally, the USPTO would have access to all pertinent information when making patentability determinations. A more expansive pre-issuance submission policy may allow members of the public to disclose relevant patents and other documents that the USPTO's own searchers may not have revealed, thereby leading to more accurate USPTO decision making. On the other hand, lengthy pre-issuance submissions may merely be repetitive of the USPTO's own search results, but still require extensive periods of examiner review that might ultimately delay examination. The pending proposals attempt to balance these concerns by expanding existing opportunities for post-publication submissions, but limiting the timing and nature of those submissions so as to prevent undue burdens upon the USPTO and patent applicants.

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[142] 35 U.S.C. § 122(c).

[143] 37 C.F.R. § 1.99.

[144] U.S. Dept. of Commerce, U.S. Patent & Trademark Off., Manual of Patent Examining Procedure § 1134.01 (8th ed. May 2004).

[145] This provision appears as § 9(b) in both bills.

Venue

Pending legislation would reform the venue provision that applies to patent infringement cases in federal court. The requirement of venue complements the more fundamental requirement of jurisdiction in federal litigation. In particular, venue addresses the question of which court, out of those that possess personal and subject matter jurisdiction, may most conveniently hear the specific lawsuit in question.[146]

Congress has enacted a specialized venue statute that applies only to patent cases. 28 U.S.C. § 1400(b) provides that in patent litigation, venue is proper either: (1) in the judicial district where the defendant resides, or (2) where the defendant has committed acts of infringement and has a regular and established place of business. An important question under this provision is where a corporation is deemed to "reside." Prior to 1988, a corporation was viewed as residing in its state of incorporation.[147] Commentators have explained that during this period, the patent venue statute was fairly restrictive, tending to move infringement litigation into the defendant's seat of operations.[148]

Congressional amendments subsequently liberalized venue concepts in patent litigation. In 1988, Congress adopted a new definition of "reside" as it applies to venue for corporate defendants.[149] Under the new definition, a corporation is presumed to reside in any judicial district to which it could be subject to personal jurisdiction at the time the litigation commences. Congress codified this change in a separate provision found at 28 U.S.C. § 1391. Although there is no evidence that Congress contemplated that these reforms would hold consequences for the specialized patent venue statute, the Federal Circuit nonetheless held that this amendment should also be read into § 1400(b).[150]

The result of the 1988 amendments has been significant for corporate defendants, which constitute the majority of defendants in patent litigation. Although § 1400(b) still governs venue in patent cases, few, if any plaintiffs rely upon the restrictive second prong of that section. Instead they base venue upon the "residence" requirement of the first prong — which now is entirely conterminous with personal jurisdiction, and which for larger corporations is likely to include every federal district in the country. For corporate defendants, then, the venue statute has essentially become superfluous, for the same standards governing personal jurisdiction also dictate whether a court may provide an appropriate venue or not.

Some observers allege that the liberal venue statute promotes forum shopping, allowing patent proprietors to bring suit in courts that they believe favor patent

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[146] *See* Wachovia Bank v. Schmidt, 126 S. Ct. 941 (2006).

[147] *See* Fourco Glass Co. v. Transmirra Prods. Corp., 353 U.S. 222 (1957).

[148] *See* Schechter & Thomas, *supra*, at § 10.1.3.

[149] Judicial Improvements and Access to Justice Act, P.L. 100-702, tit. X, § 1013(a), 102 Stat. 4642, 4669 (1988).

[150] VE Holding Corp. v. Johnson Gas Appliance Co., 917 F.2d 1574 (Fed. Cir. 1990).

owners over accused infringers. One such "magnet jurisdiction" is said to be the rural Eastern District of Texas, and in particular the Marshall, Texas federal court. According to one account, many observers "wonder how an East Texas town of 25,000 — even if it was named after Supreme Court Justice John Marshall — came to harbor an oversized share of intellectual property disputes."[151] In addition, reportedly "many of the local lawyers who once specialized in personal injury cases are turning their attention to intellectual property law."[152] Others believe that the existence of a single appellate court for patent cases, the Federal Circuit, minimizes forum shopping concerns, and that certain district courts attract patent cases due to their expertise and timeliness, rather than an inherent favoritism for patent holders.

In any event, both the House and Senate bills would amend § 1400(b) by providing for venue (1) in the judicial district where either party resides, or (2) where the defendant has committed acts of infringement and has a regular and established place of business. H.R. 1908 and S. 1145 further stipulate that, notwithstanding § 1391, for purposes of venue in patent cases "a corporation shall be deemed to reside in the judicial district in which the corporation has its principal place of business or in the State in which the corporation is incorporated."[153]

Interlocutory Claim Construction Appeals

Both H.R. 1908 and S. 1145 would allow a litigant to pursue an interlocutory appeal of a patent claim construction order to the Court of Appeals for the Federal Circuit. This provision appears to be motivated by the recognition that the interpretation of a patent claims — a process that in large measure determines the scope of the patent owner's proprietary rights — is the most fundamental inquiry that occurs during patent litigation.[154] In addition, numerous observers have perceived the Federal Circuit to have a high reversal rate of claim interpretations by the district courts.[155] Because claim construction is commonly the central focus of a patent trial, the Federal Circuit's reversal of that construction often requires the district court to retry the entire case. As patent litigation is a notoriously lengthy and costly exercise, some observers believe that the current system is overly expensive and inefficient.[156]

Some commentators have opined that allowing an immediate appeal of patent claim construction orders would allow Federal Circuit review before the litigants are

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[151] Allen Pusey, "Marshall Law: Patent Lawyers Flood to East Texas Court for Its Expertise and 'Rocket Docket'," *Dallas Morning News* (March 26, 2006), 1D.

[152] *Ibid.*

[153] This provision appears as § 10(a) in both bills.

[154] *See* Joseph Scott Miller, "Enhancing Patent Disclosure for Faithful Claim Construction," 9 *Lewis & Clark Law Review* (2005), 177.

[155] *See* Kimberly A. Moore, "Are District Court Judges Equipped to Resolve Patent Cases?," 12 *Federal Circuit Bar Journal* (2002), 1.

[156] *See* Gwendolyn Dawson, "Matchmaking in the Realm of Patents: A Call for the Marriage of Patent Theory and Claim Construction Procedure," 79 *Texas Law Review* (2001), 1257.

put to the full expense of a trial in federal district court.[157] Ordinarily, litigants may appeal only "final decisions" from the district courts.[158] Although federal law currently allows for a review of an intermediate matter at trial[159] — a so-called interlocutory appeal — the Federal Circuit has declined to accept such appeals for routine claim interpretation cases.[160] Both H.R. 1908 and S. 1145 would expressly authorize such interlocutory appeals.[161]

Enhanced USPTO Rulemaking Authority

Under current law, the ability of the USPTO to issue regulations governing substantive patent law matters is extremely limited. The most significant grant of rulemaking authority appears to be found in 35 U.S.C. § 2(b)(2)(A), which allows the USPTO to establish regulations that "shall govern the conduct of proceedings in the Office ...." As explained by the Federal Circuit, "Congress has not vested the [USPTO Director] with any general substantive rulemaking power ...."[162]

Both H.R. 1908 and S. 1145 would expand USPTO rulemaking authority.[163] The USPTO Director would be permitted to "promulgate such rules, regulations, and orders as the Director determines appropriate to carry out the provisions of this title or any other law applicable to the [USPTO] or that the Director determines necessary to govern the operation and organization of the Office."

Additional Issues

Reforms pertaining to a number of additional patent law doctrines were discussed before the 109th Congress, but were not incorporated within H.R. 1908 or S. 1145 introduced in the 110th Congress. This report reviews two of these topics — the "best mode" requirement and the defense of unenforceability — in the event that consideration of these reforms is renewed in the current Congress.

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[157] *See* Kyle J. Fiet, "Restoring the Promise of Markman: Interlocutory Patent Appeals Reevaluated Post-*Phillips v. AWH Corp.*," 84 *North Carolina Law Review* 1291 (2006).

[158] 28 U.S.C. § 1291 (2006).

[159] 28 U.S.C. § 1292 (2006).

[160] *See* Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1479 (Fed. Cir .1998) (en banc) (Newman, J., additional views).

[161] This provision appears as § 10(b) in both bills.

[162] Merck & Co. v. Kessler, 80 F.3d 1543, 1550 (Fed. Cir. 1996).

[163] This provision appears as § 11 in both bills.

Elimination of the Best Mode Requirement

Introduced in the 109th Congress, H.R. 2795 would have eliminated U.S. patent law's best mode requirement.[164] Currently, inventors are required to "set forth the best mode contemplated by the inventor of carrying out his invention." [165] Failure to disclose the best mode known to the inventor is a ground for invalidating an issued patent. The courts have established a two-part standard for analyzing whether an inventor disclosed her best mode in a particular patent. The first inquiry was whether the inventor knew of a way of practicing the claimed invention that she considered superior to any other. If so, then the patent instrument must identify, and disclose sufficient information to enable persons of skill in the art to practice that best mode.[166]

Proponents of the best mode requirement have asserted that it allows the public to receive the most advantageous implementation of the technology known to the inventor. This disclosure becomes part of the patent literature and may be freely reviewed by those who wish to design around the patented invention. Absent a best mode requirement, some observers say, patent proprietors may be able to maintain the preferred way of practicing their inventions as a trade secret. Members of the public are also said to be better able to compete with the patentee on equal footing after the patent expires.[167]

The best mode requirement has encountered severe criticism in recent years, however.[168] For example, a 1992 Presidential Commission recommended that Congress eliminate the best mode requirement. The Commission reasoned that patents also are statutorily required to disclose "the manner and process of making and using [the invention], in such full, clear, concise, and exact terms as to enable any person skilled in the art ... to make and use the same."[169] This "enablement" requirement was believed to provide sufficient information to achieve the patent law's policy goals.[170]

The Commission further stated that the best mode requirement leads to increases in the costs and complexity of patent litigation. As the Commission explained:

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[164] That provision appeared as § 4(d) in H.R. 2795 (Chairman's Draft Substitute of July 26, 2005). The omnibus patent reform bill introduced before the Senate, S. 3818, did not address the best mode requirement, and therefore would have retained existing law.

[165] 35 U.S.C. § 112.

[166] *See, e.g.*, Chemcast Corp. v. Arco Industries Corp. 913 F.2d 923 (Fed. Cir. 1990).

[167] *See* Jerry R. Selinger, "In Defense of the 'Best Mode': Preserving the Benefit of the Bargain for the Public, 43 *Catholic University Law Review* (1994), 1071.

[168] *See, e.g.,* Steven B. Walmsley, "Best Mode: A Plea to Repair or Sacrifice This Broken Requirement of United States Patent Law," 9 *Michigan Telecommunications and Technology Law Review* (2002), 125.

[169] 35 U.S.C. § 101.

[170] 1992 Advisory Commission Report, *supra,* at 102-03.

> The disturbing rise in the number of best mode challenges over the past 20 years may serve as an indicator that the best mode defense is being used primarily as a procedural tactic. A party currently can assert failure to satisfy the best mode requirement without any significant burden. This assertion also entitles the party to seek discovery on the "subjective beliefs" of the inventors prior to the filing date of the patent application. This broad authority provides ample opportunity for discovery abuse. Given the fluidity by which the requirement is evaluated (e.g., even accidental failure to disclose any superior element, setting, or step can negate the validity of the patent), and the wide ranging opportunities for discovery, it is almost certain that a best mode challenge will survive at least initial judicial scrutiny.[171]

The Commission further reasoned that the best mode at the time of filing is unlikely to remain the best mode when the patent expires many years later.[172] Because many foreign patent laws include no analog to the best mode requirement, inventors based overseas have also questioned the desirability of the best mode requirement in U.S. law.

Unenforceability (Inequitable Conduct)

The administrative process of obtaining a patent from the USPTO has traditionally been conducted as an *ex parte* procedure. Stated differently, patent prosecution involves only the applicant and the USPTO. Members of the public, and in particular the patent applicant's marketplace competitors, do not participate in patent acquisition procedures.[173] As a result, the patent system relies to a great extent upon applicant observance of a duty of candor and truthfulness towards the USPTO.

An applicant's obligation to proceed in good faith may be undermined, however, by the great incentive applicants might possess not to disclose, or to misrepresent, information that might deleteriously impact her prospective patent rights. The patent law therefore penalizes those who stray from honest and forthright dealings with the USPTO. Under the doctrine of "inequitable conduct," if an applicant intentionally misrepresents a material fact or fails to disclose material information, then the resulting patent will be declared unenforceable.[174] Two elements must exist before a court will decide that the applicant has engaged in inequitable conduct. First, the patentee must have misrepresented or failed to disclose material information to the

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[171] *Ibid.* at 101.

[172] *Ibid.* at 102-03.

[173] 35 U.S.C. § 122(a) (stating the general rule that "applications for patents shall be kept in confidence by the Patent and Trademark Office and no information concerning the same given without authority of the applicant ....").

[174] Glaverbel Societe Anonyme v. Northlake Mktg. & Supply Inc., 45 F.3d 1550 (Fed. Cir. 1995).

USPTO in the prosecution of the patent.[175] Second, such nondisclosure or misrepresentation must have been intentional.[176]

During patent infringement litigation, an accused infringer has the option of asserting that the plaintiff's patent is unenforceable because it was procured through inequitable conduct. Concerns have arisen that charges of inequitable conduct have become routine in patent cases. As one commentator explains:

> The strategic and technical advantages that the inequitable conduct defense offers the accused infringer make it almost too attractive to ignore. In addition to the potential effect on the outcome of the litigation, injecting the inequitable conduct issue into patent litigation wreaks havoc in the patentee's camp. The inequitable conduct defense places the patentee on the defensive, subjects the motives and conduct of the patentee's personnel to intense scrutiny, and provides an avenue for discovery of attorney-client and work product documents ....[177]

As the Federal Circuit put it, "the habit of charging inequitable conduct in almost every major patent case has become an absolute plague."[178] Other observers believe that because inequitable conduct requires an analysis of the knowledge and intentions of the patent applicants, the doctrine may also be contributing disproportionately to the time and expense of patent litigation.[179]

Due to these perceived burdens upon patent litigation, some commentators have proposed that the inequitable conduct defense be eliminated.[180] Others believe that inequitable conduct is necessary to ensure the proper functioning of the patent system. As the Advisory Commission on Patent Law Reform explained in its 1992 report:

> Some mechanism to ensure fair dealing between the patentee, public, and the Federal Government has been part of the patent system for over 200 years. In its modern form, the unenforceability defense provides a necessary incentive for patent applicants to engage in fair and open dealing with the [USPTO] during the ex parte prosecution of patent applications, by imposing the penalty of forfeiture of patent rights for failure to so deal. The defense is also considered to be an essential safeguard against truly fraudulent conduct before the [USPTO]. Finally, the defense provides a means for encouraging complete disclosure of information relevant to a particular patent application .... Thus, from a policy

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[175] Heidelberger Druckmaschinen AG v. Hantscho Comm'l Prods., Inc., 21 F.3d 1068 (Fed. Cir. 1993).

[176] Jazz Photo Corp. v. U.S. Int'l Trade Comm'n, 264 F.3d 1094 (Fed. Cir. 2001).

[177] John F. Lynch, "An Argument for Eliminating the Defense of Patent Unenforceability Based on Inequitable Conduct," 16 *American Intellectual Property Law Association Quarterly Journal* (1988), 7.

[178] Burlington Indus., Inc. v. Dayco Corp., 849 F.2d 1418 (Fed. Cir. 1988).

[179] *See, e.g.,* Scott D. Anderson, "Inequitable Conduct: Persistent Problems and Recommended Resolutions," 82 *Marquette Law Review* (1999), 845.

[180] Lynch, *supra*, at 7.

> perspective, the defense of unenforceability based upon inequitable conduct is desirable and should be retained.[181]

Proposed legislation in the 109th Congress would have retained the concept of an inequitable conduct defense, but introduced a number of substantive and procedural changes to the doctrine. The Senate bill (S. 3818) would have limited the availability of inequitable conduct as an affirmative defense to patent infringement.[182] In particular, inequitable conduct may only have been found if the patentee, his agent, or his privy failed to disclose material information, or submitted false information, with an intent to deceive the USPTO. A finding of good faith on behalf of the applicant, agent or privy would have negated a conclusion of inequitable conduct. Finally, in a notable departure from current law, a court may not have reached a finding of inequitable conduct if none of the claims of the patent have been held invalid.

The House bill also proposed reforms to the inequitable conduct doctrine,[183] but its approach differed. The House bill would have provided statutory authorization for the USPTO Director to issue regulations governing applicants' duty of candor. It would have also imbued the USPTO with authority to prosecute violations of the inequitable conduct doctrine. In addition, the House bill would have limited the circumstances under which the defense of inequitable conduct could be raised before the courts. In broad outline, under the House bill, if a court determined that an issue of possible misconduct existed, then the court was directed to refer the matter to the USPTO. Within judicial infringement proceedings, issues of inequitable conduct could only have arisen after the court granted a motion to amend the pleadings. Such a motion would have had to describe the relevant facts in detail and could not have been granted until the court has previously entered a judgment that at least one of the asserted patent claims is invalid. Finally, a charge of inequitable conduct could not have been sustained unless the USPTO "would not have issued the invalidated claim, acting reasonably, in the absence of the misconduct," or "based upon the prosecution history as a whole objectively considered, would have done so based upon in whole or in part on account of the misconduct."

Concluding Observations

Pending legislation introduced in the 110th Congress arguably would work the most sweeping reforms to the U.S. patent system since the nineteenth century. However, many of these proposals, such as pre-issuance publication, prior user rights, and oppositions, have already been implemented in U.S. law to a more limited extent. These and other proposed modifications, such as the first-inventor-to-file priority system and elimination of the best mode requirement, also reflect the decades-old patent practices of Europe, Japan, and our other leading trading partners.

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[181] 1992 Advisory Commission, *supra*, at 114.

[182] These provisions appeared in § 5(c) of S. 3818.

[183] These provisions appeared in § 5 of H.R. 2795 (Chairman's Draft Substitute of July 26, 2005).

As well, many of these suggested changes enjoy the support of diverse institutions, including the Federal Trade Commission, National Academies, economists, industry representatives, attorneys, and legal academics.

Other knowledgeable observers are nonetheless concerned that certain of these proposals would weaken the patent right, thereby diminishing needed incentives for innovation. Some also believe that changes of this magnitude, occurring at the same time, do not present the most prudent course for the patent system. Patent reform therefore confronts Congress with difficult legal, practical, and policy issues, but also with the apparent possibility for altering and potentially improving the legal regime that has long been recognized as an engine of innovation within the U.S. economy.

Legislation

H.R. 1908 (Berman)

Patent Reform Act of 2007. Makes changes to patent law. Introduced April 18, 2007; referred to the House Committee on the Judiciary. Hearings held by the Subcommittee on Courts, the Internet, and Intellectual Property on April 26, 2007.

S. 1145 (Leahy)

Patent Reform Act of 2007. Makes changes to patent law. Introduced April18, 2007; referred to the Senate Committee on the Judiciary. crsphpgw