

The International Approach of a Tiered Patent System and its Role in Patent Reform in the United States

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Preface

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Executive Summary

In the United States, the traditional forms of protection for inventions, design and utility patents, are struggling to adapt to new forms of technology that have appeared in the last few years. This new technology, including computer hardware, software, and business methods, is characterized by quick development cycles (sometimes measured in months), incremental advances, and a limited duration of market usefulness.

Two studies were released in early 2004, one by The National Academy of Sciences and the other by the Federal Trade Commission, that outlined the following problems in the current patent system in the United States:

- Patent quality is degrading. The main cause of this degradation in quality stems from the recent steep increase in patent applications. Patent examiners are being forced to spend less time on increasingly complex applications.
- Patents have no low cost option. The average corporate patent costs from \$10,000 to \$30,000 in fees¹. Small business owners, independent inventors, and companies that produce fast moving technology need a lower cost option for protection.
- Patents have gaps in coverage. Design patents protect the appearance of an invention and utility patents protect the function of an invention. However, there are a number of inventions that do not qualify for design patents because their design is inherently functional and do not qualify for utility patents because they fail the “non-obvious test”².
- Patents have not adapted to new technology. Companies that develop fast moving technology³ are finding the current system inadequate. Patents are issued too slowly and provide protection for too long.
- Defensive patenting and patent thickets are emerging. Defensive patenting arises when firms attempt to amass a large portfolio of patents to use as leverage in litigation. Patent thickets result from this large mass of patents because many are interdependent, forming a tangled “thicket” of patent rights.

Many countries around the world have created a tiered patent system to better accommodate these new technologies that consists of a top tier of protection and a new lower tier of protection. The top tier of protection will be referred to as a standard patent and contains two subcategories: design and utility. It is characterized by a high standard of invention, a long term of protection, and a stringent examination process. The bottom tier of patent protection, which will be referred to as a minor patent, is characterized by a lower standard of invention, a short term, and an expedited grant process.

In 1995, two studies were performed that analyzed the effectiveness of tiered patent protection. One study, performed by the European Commission, addressed several systems in the

¹ The National Academy of Sciences. A Patent System for the 21st Century. National Academies Press. 2004. pp 31. (Hereafter, NAS)

² A standard used in granting patents that means that the innovation must not be obvious to someone skilled in the art.

³ Fast moving technology applies to inventions that have a very fast development cycle (measured in months) and a limited duration of commercial usefulness (typically only a few years).

European Union, and the other study, performed by the Australian Council on Intellectual Property, addressed the Australian tiered patent system. These studies made the following recommendations for structuring the lower tier of protection:

- Coverage. Minor patents should cover the same subject matter as standard patents.
- Inventive Level. Minor patents should have a lower inventive level than that of standard patents. For example, they should use the standard of “novel and useful” instead of “novel and non-obvious”.
- Scope and Claims. The number and scope of claims should be restricted to a number that strikes a balance between ease of drafting an application and not restricting its ability to fully describe an invention. A limit of five unrestricted claims was suggested.
- Exclusions. Subject matter exclusions for minor patents should be the same as those for standard patents.
- Term. The term of protection should be much less than that of standard patents. A term of 3-8 years is typical.
- Examination Procedure. No substantive examination should be done at filing. However, minor patents should be required to be examined before being used in an infringement action against another party.
- Publication. Applications should be published immediately.
- Infringing acts and Enforcement. Infringement should be determined in the same way as standard patents. Minor patents should be litigated in an administrative tribunal or in alternative dispute resolution with the option of appeal to federal courts.

This framework for tiered patent protection can be applied to the United States, and this approach has the potential to address, in some way, almost all of the issues that we are currently seeing in the U.S. patent system. The most likely effects are in the areas of:

- Patent Quality and Cost. The addition of a cheaper lower tier of protection allows fees to be raised on the top tier. As a result, there would be fewer applications for standard patents, with the balance shifting to minor patents. Examination efficiency would improve with fewer standard applications to examine, and the increased volume of minor patents would be inconsequential because they are not examined upon filing.
- Gap in Coverage. Because of the lower standard of invention for minor patents, the 'gap' in coverage between design and utility patents would be eliminated.
- Adapting to New Technology. Fast moving technology would benefit from a less expensive form of protection that issues quickly and provides only the few years of protection that are needed.
- Defensive Patenting and Patent Thickets. The incentive for firms to engage in defensive patenting is weaker because of minor patents' limited duration, and standard patents becoming much more expensive. Patent thickets are cleared much more quickly because of the very short term of protection.

Before a tiered patent system is implemented in the United States, there are a few obstacles that must be negotiated. The United States is a party to several international

treaties dealing with intellectual property, including TRIPS and the Portugal Convention. These treaties dictate such things as minimum terms of protection, procedures for dealing with other patent systems, and even what subject matter can be patented. A tiered patent model would have to be designed around these restrictions. Also, Dr. David Martin of M-CAM, Inc. cautions that any new patent system would also need a procedure to determine the commercial value of protection for banking and securities.

However, there is not enough data available currently to provide a definitive judgment about a tiered patent approach. Although similar systems have existed for decades, most have undergone changes in the last few years, and more time is needed to rate the success of these changes. Furthermore, in the United States two key pieces of information are missing: an economic analysis of the impacts of this approach on the unique aspects of our system and a survey of U.S. companies willingness to take advantage of this type of protection. Because patent reform is becoming a major issue in the United States, a tiered patent system should be further examined as an alternative solution to the current problems.

Introduction

The United States patent system is currently struggling to adapt to the technological environment of the 21st century. In this environment, the traditional forms of protection, design and utility patents, either do not apply to some new technologies or are in need of updating to adapt to products that may go from conception to sale in a matter of months.

Various countries around the world, including Japan, Australia, and most of Europe, have responded to this new environment by developing a tiered patent system. This approach divides patent protection into two categories. The top tier of protection will be referred to as a standard patent and contains two subcategories: design and utility. It is characterized by a high standard of invention, a long term of protection, and a stringent examination process. It is well suited for industries like pharmaceuticals that require large expenditures of effort to make advances, realize the benefits over a long period of time, or constitute substantial “leaps” in technology. The bottom tier of patent protection, which will be referred to as a minor patent, is characterized by a lower standard of invention, a short term, and an expedited grant process. This form of protection is best suited for environments that have short development cycles of inventions that may be only modest improvements on existing technology.

In the United States, there is an increasing awareness that there are a number of weaknesses in the U.S. patent system that need to be addressed. Fortunately, throughout the world there is a wealth of experience with the same type of problems that we see affecting the United States today including quality, cost, coverage gaps, and applicability to new technology. This accumulated knowledge and analysis can be used to extrapolate the possible effects in the U.S. Applying these ideas domestically, however, will not be an easy task because there are a number of differences between the numerous systems and a forest of treaties and agreements that must be negotiated.

Background

Throughout modern history the United States has been a world leader in scientific and technological innovation. Most of this innovation would not have existed without our system of intellectual property protection, including patents and copyrights.⁴ Patents and copyrights promote innovation by providing a reward in the form of a time limited statutory monopoly on the fruits of such innovation. The costs of pursuing this innovation are recouped by leveraging the monopoly rights granted.

Article I, 8, cl. 8, of the United States Constitution gives Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Even at a time of relatively little technical advancement compared to today, this passage reflected a fundamental idea: that scientific discovery was vital to the progress of the United States economy. Thus, it is often referred to as the “Progress Clause.”

However, this clause makes clear that there are limitations on these powers. Congress may not allow inventors perpetual rights to their inventions, nor may it “authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available.”⁵ Congress realized that progress in the Arts and Sciences is sometimes incremental, building upon the ideas of others. Thus, these limitations insure that no one party will have complete control over innovation in a field.

In 1790, Congress passed the Patent Act which provided a 14 year term of protection to anyone who “hath . . . invented or discovered any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used.”⁶ In addition to patents, Congress has created other protections for creative works including: copyrights, which protect literary, musical, and other artistic works; trademarks, which protect against consumer confusion of products; and trade secrets, which protect information vital for an entity to compete in the market.

While the foundations of these protections has remained relatively unchanged over the years, Congress never intended the original framework to protect all future inventions, including those that could not be reasonably foreseen. Therefore, these protections are periodically reexamined, and Congress makes the necessary adjustments to preserve innovation and competition. For example, in 1842, a new form of patent protection was created for “any new, original, and ornamental design for an article of manufacture.”⁷ This protection extended a 14-year term of protection to the appearance of an article not inseparably tied with its utility.

The last round of adjustments to the patent system took place in the 1980s and 1990s and included a widening of the scope of patents to include organisms with artificially engineered genetic characteristics, computer software as an adjunct to a physical process, and business

⁴ The National Academy of Sciences. A Patent System for the 21st Century. National Academies Press. 2004. pp 14. (Hereafter, NAS)

⁵ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 6 (1966).

⁶ Ch. 7, 1 Stat. 109, 110. (1790)

⁷ 35 U.S.C 171.

methods that accomplish useful, concrete, and tangible results. Congress also addressed an apparent ‘gap’ in protection between design and utility patents that will be discussed in the next section.

Questions about the patentability of computer software⁸ began with a 1972 Supreme Court ruling in *Gottschalk, Commissioner of Patents v. Benson*⁹, where the court found that a process (utilizing a computer) for converting binary coded decimal into binary was not patentable. In this case, the question revolved around whether a computer program could be separated from the mathematical algorithm that it implements. Although the court found that in this case it could not, the court was careful to note that computer software might be patentable under different circumstances. In the next 30 years, courts would revisit the question numerous times culminating in 1994 with *In re Alappat*. The Court of Appeals for the Federal Circuit found in this decision that “a computer operating pursuant to software may represent patentable subject matter, provided, of course, that the claimed subject matter meets all of the other requirements of Title 35. In any case, a computer . . . is apparatus not mathematics.”¹⁰ *In re Alappat* provided the clearest legal precedent to date about the patentability of software, namely that patentable software is that which has utility.

⁸ For further reading see: Hollaar, Lee A. Legal Protection of Digital Information. BNA Books. 2002.

⁹ 409 U.S. 63, 175 USPQ 673 (1972)

¹⁰ 33 F.3d at 1545, 31 USPQ2d at 1558

Current issues in the United States Patent System

Fortunately, our system of intellectual property, through periodic readjustment, has been able to keep up with changing technology. However, new forms of technology, including electronic components, computer software, and business methods, have created an environment where patent protection must again be revisited because they are fundamentally different than the inventions that patents were intended to protect. The same problems that have been present for many years are making a resurgence, and they seem to be more pronounced now that new variables are being introduced by recent technological progress.

Patent quality is degrading

The patent office has been dealing with the problem of poor patent quality for years. In the study performed by the National Academy of Sciences, they were concerned that “the USPTO¹¹ too frequently – or more frequently than in the past – issues patents for inventions that do not conform to generally accepted standards for patentability, especially in technology areas that are newly patentable”.¹² The study goes on to cite reasons for this decline including: “quantity and quality of relevant resources, examiner qualifications, experience and incentives, the time devoted to searching and evaluating each application, and the information available to examiners.”¹³

Recent increases in the volume of patents filed makes it even more difficult to address the problems that already exist. As former Under Secretary of Commerce for Intellectual Property and Director of the USPTO James Rogan recently expressed: there is an “unprecedented explosion of patent applications.”¹⁴ Note the increase beginning in the mid 1990's in Figure 1 on the next page. Most of this explosion can be attributed to the reforms of the '80s and '90s that have made patent procurement a much more lucrative, if not essential, process in the current business climate. Responding to the staggering volume of applications, patent examiners are forced to spend less time on applications that are increasingly complex. Recent witnesses at hearings on patent office reforms were concerned that examiners have “from 8 to 25 hours to read and understand each application, search for prior art, evaluate patentability, communicate with the applicant, work out necessary revisions, and reach and write up conclusions.”¹⁵

¹¹ United States Patent and Trademark Office

¹² NAS pp 38.

¹³ NAS pp 38.

¹⁴ Federal Trade Commission. “To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy” (hereafter “To Promote Innovation”) October 2003, pp 60.

¹⁵ Summary of testimony, in Federal Trade Commission. “To Promote Innovation” October 2003, pp 13.

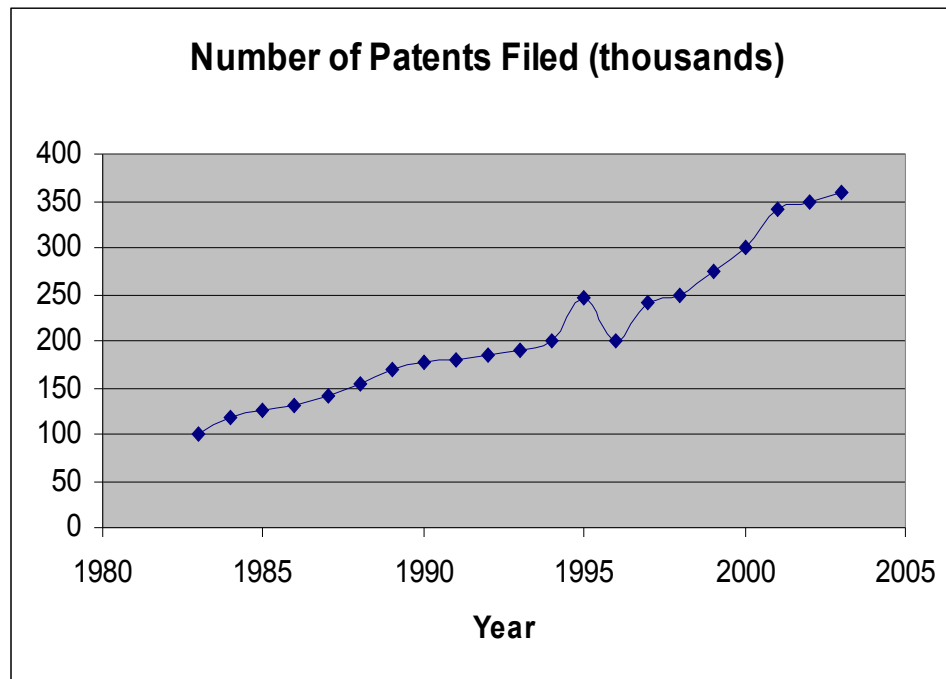


Figure 1: Number of patents filed with the US Patent and Trademark Office¹⁶

Maintaining this workload would be daunting for even the most experienced patent examiner, but in reality many applications are seen by junior examiners that may have only a few months of experience after graduating from a university. As a result, patents that should never have passed the novel¹⁷ or nonobvious¹⁸ standards are granted. There have been several attempts to alleviate the inexperience problem. A recent initiative known as the “second pair of eyes” allocates an additional, more senior, examiner to assist in reviewing difficult types of applications. Though, as one might guess, adding a second examiner helps the inexperience problem but exacerbates the problem of too few examiners and too few resources.

Patents have no low cost option

Cost is also a huge factor in the filing of patents for fast moving technology. According to the National Academy of Sciences, “The direct costs of the patent system are significant, increasing, and in some cases may adversely affect innovation . . . from the point of view of the inventor or firm applying for a patent, it is estimated that the average corporate patent prosecution now costs the applicant \$10,000 - \$30,000 in fees.”¹⁹ Firms are realizing that it is not cost effective to file for patents on works for only one or two years of needed protection, and instead they are opting to keep their technology under the protection of trade secrets.²⁰ This trend

¹⁶ Patent volume statistics, as cited in Schoen, John W. “U.S. patent office swamped by backlog” MSNBC. <http://www.msnbc.msn.com/id/4788834/> Accessed July 2004.

¹⁷ Novel means not existing prior to the application.

¹⁸ A standard used in granting patents that means that the innovation must not be obvious to someone skilled in the art.

¹⁹ NAS pp 31.

²⁰ Trade secrets are a form of protection that cover confidential business information (information not readily attainable by the public). This protection is instantaneous, automatic, and without limit on duration as long as the information meets the set criteria. Patent protection for inventions is much more beneficial to society than trade secret protection because

is a loss for government, business, and consumers: government loses the revenue from patent filing and renewal fees, businesses lose the capability to build on the expired technology of other companies, and consumers see fewer works in the public domain.

If filing costs are a deterrent for many firms, then litigation costs are an almost impenetrable barrier. The American Intellectual Property Law Association reports that “[t]he median cost to each party of proceeding through a patent infringement suit to a verdict at trial is at least \$500,000 where the stakes are relatively modest. Where more than \$25 million is at risk in a patent suit, the median litigation cost is \$4 million for each party”²¹. Furthermore, a 1998 report on litigation in the patent system reported that “the average period between the filing of a patent application and a final ruling on the patent's validity was 12.26 years; the average time between the issuance of the patent and resolution of its validity was 8.61 years.”²² Even in industries where patents are cross-licensed between a few large firms, developing the licensing agreements requires expenditures similar to litigation.²³ The result of such astronomical costs is large businesses dedicating substantial amounts of effort and resources to the bureaucratic processes involved in patent filing, litigation, and management. Small firms are at a significant disadvantage in these bureaucratic processes. Lanjouw and Schankerman, in a study in 2003, found that litigation costs benefited from economies of scale; therefore, larger firms with similarly large portfolios settle disputes more quickly.²⁴ Furthermore, firms that cannot afford the expected costs of filing and maintaining patents are dissuaded from filing patents altogether.²⁵

Patents have gaps in their coverage

In the late 1990's, Congress began looking at the supposed ‘gap’ in protection between design patents and utility patents. Design patents exist to provide protection to a distinctive product design. Very similar to trademarks, which provides protection for names and shapes that customers associate with a company, design patents protect, for example, the shape of a lantern or more recently the appearance of icons in a computer program. However, to qualify the visible elements of an invention for protection, the elements must not be utilitarian in nature. Utility patents protect the utilitarian function of inventions. This category encompasses a wide variety of inventions including machines, processes, compositions of matter, and computer software. The main requirements to obtain a utility patent are that the invention must be ‘novel’ and ‘non-obvious’.

There is a very small area between these two categories that encompasses inventions that

patented inventions lapse into the public domain after their term has expired.

²¹ Lerner J. “Patenting in the Shadow of Competitors.” *Journal of Law and Economics*. 38(October 1995):463-495. as cited in NAS.

²² NAS pp 56, paraphrasing Allison, J. and M. Lemley. “Empirical Evidence on the Validity of Litigated Patents.” *AIPLA Quarterly Journal* 26: 185-277

²³ NAS pp 31.

²⁴ Lanjouw, J. and M. Schankerman (2003) “Enforcement of Patent Rights in the United States.” In *Patents in the Knowledge-Based Economy*, W. Cohen and S. Merrill eds. Washington, D.C.: National Academy Press as cited in NAS.

²⁵ Cohen W., R. Nelson, and J. Walsh (2000). “Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not).” NBER Working Paper 7552. <http://www.nber.org/papers/w7552> as cited in NAS.

cannot receive a design patent because the invention is inherently utilitarian and cannot receive a utility patent because the invention is not sufficiently non-obvious to a person skilled in the art. In 1998 a provision was inserted into the Digital Millennium Copyright Act (DMCA) entitled “The Vessel Hull Design Protection Act” which created a form of intellectual property similar to a minor patent. This protection extended protection to inventions that did not qualify for design or utility protection. Interestingly, this broadly written law was substantially narrowed when the legislation defined the inventions protected as “a vessel hull, including a plug or mold, which in normal use has an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information.”²⁶ The question remains today: Should this protection be widened to cover all inventions that reside in this ‘gap’ as the theme of the legislation suggests?

Patents have not adapted to new technology

Technological change has created several new frontiers in intellectual property with unique characteristics. These new types of technology are usually fast moving, increasingly incremental, and require only a few years of protection. Further, each new area of technology, whether it is electronic components, integrated circuits, or software, affects the system in a different way.

In general, fast moving technology can be defined as anything that has a product cycle of less than 36 months.²⁷ The U.S. House of Representatives Committee on Science observed in 1995 that

“In a growing number of industries – such as computer hardware and software . . . – the pace of advancement has begun to challenge the ability of the patent office to process applications in a time frame that is functionally useful to the inventor. In fast moving fields, such as electronics, semiconductor, and telecommunications, patents granted years after filing may be of ‘little value’.”²⁸

The increasing volume of applications is the cause of most of these unprecedented delays in applications. Where a patent was once expected to issue in under 18 months, a patent application filed today may take several years. These time frames are unacceptable for products that will outlive their usefulness in as little as a year after patent protection begins. Not surprisingly, as part of a survey performed by the Federal Trade Commission, “patents trailed secrecy, lead time, investments in complementary manufacturing capabilities and investments in complementary sales and services as appropriability mechanisms that businesses preferred . . . patent significance varied sharply by industry . . . [and] semiconductor and communications equipment patents were effective less than 27% of the time.”²⁹

The term of protection for standard patents is also a concern with some fast moving

²⁶ 17 U.S.C 1301(b)(2)

²⁷ The average patent pendency in the US can range from 23 to 39 months. See USPTO Statistics http://www.uspto.gov/web/offices/com/annual/2003/060404_table4.html.

²⁸ Federal Trade Commission. “To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy” (hereafter “To Promote Innovation”) October 2003, pp 34-35.

²⁹ Federal Trade Commission. “To Promote Innovation” October 2003, pp 81.

technology. In fields like consumer electronics, telecommunications, and other high technology areas, products are often obsolete after only a few years. The standard 20-year term of patents enables firms to retain monopoly rights in situations where the technology has exhausted its usefulness. As a result of this residual right, derivative works that are based on such technology are hindered because it is usually unwise to pursue development in an area that is encumbered by patents on the basic technology.

Computer software and business methods share many characteristics with other fast moving technology. They need very quick issuing protection that has a short duration, and they are very susceptible to patent thickets because of their very incremental nature. The FTC observed in its report that:

“computer hardware and software contain an incredibly large number of incremental innovations. Moreover, as more and more patents issue on incremental inventions, firms seek more and more patents to have enough bargaining chips to obtain access to others’ overlapping patents.” (citations omitted)³⁰

However, different from other fast moving technology, software and business methods have a problem of prior art. Examiners rely on vast databases of prior art to determine whether an invention is “novel” and “non-obvious,” the minimum requirements to receive full patent protection. Because of the very recent adoption of protection for these kinds of technology, there is less prior art available. If there is less prior art available, then the quality of software and business method patents will be lower.

Defensive Patenting and Patent Thickets

Because fast moving technology is obsolete in as little as a few years, firms have started to use patents in an entirely different manner than originally intended. This trend is known as defensive patenting, and it refers to the practice of amassing a large collection of patents that may be used as a deterrent for litigation or as a bargaining chip during licensing negotiations. Instead of promoting innovation, using otherwise useless patents as “leverage” increases the entry-barrier for competition and reduces the need to innovate to retain a competitive advantage. Consequentially, the technology sector becomes increasingly dominated by a few players with thousands of patents and little incentive to license technology to startups.

As the patenting machines of large firms churn out hundreds of defensive patents yearly, it is inevitable that many patents may build on technology that is patented by other firms. The web of interdependent patents comes to be known as a patent thicket, and it makes it much more difficult for companies to enter into new areas of research or develop new technology. To subsequently bring this technology to market, firms must devote time and resources to searching out and negotiating licenses from other parties. The problem is illustrated quite clearly by Carl Shapiro of the University of California at Berkeley who equates scientific advances to building blocks of a pyramid.

³⁰ Federal Trade Commission. “To Promote Innovation” October 2003, pp 6-7.

Today, most basic and applied researchers are effectively standing on top of a huge pyramid, not just on one set of shoulders. Of course, a pyramid can rise to far greater heights than could any one person, especially if the foundation is strong and broad. But what happens if, in order to scale the pyramid and place a new block on the top, a researcher must gain the permission of each person who previously placed a block in the pyramid, perhaps paying a royalty or tax to gain such permission?³¹

In addition to hindering innovation directly, defensive patenting and patent thickets also affect innovation indirectly. Getting caught up in this “race to the bottom” where firms attempt to surpass other firms in patent volume forces them to allocate resources that could otherwise be used for innovation. A panelist for the FTC report expressed his concern that “the time and money his software company spends on creating and filing these so-called defensive patents, which ‘have no . . . innovative value in and of themselves,’ could have been better spent on developing new technologies.” (citations omitted)³²

³¹ Shapiro, Carl. “Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting.” March 2001. pp 3.

³² Federal Trade Commission. “To Promote Innovation” October 2003, pp 6-7.

Comparison of foreign minor patent systems

This section will attempt to define a framework for a minor patent as it might be implemented in the United States. As discussed earlier, there are already many implementations of the tiered patent model around the world. To insure that all relevant variations of the tiered patent concept are covered, patent systems from Europe, collectively known as “utility models”, and Australia’s “petty patents” or “innovation patents” will be used in the analysis. Europe was chosen for its diversity of implementations and for its ability to demonstrate how these systems interoperate with each other, and Australia was chosen because it has several decades of experience with the tiered patent concept in a relatively isolated environment. A proposed form of minor patent protection in the United States, called “useful article” protection, will also be addressed in the analysis.

Like a standard patent, a minor patent is defined by several distinct criteria:

- Coverage – The range of technology that is available for protection
- Inventive level – The standard of invention that must be met to qualify for protection, common wording is similar to “non-obvious” or “utilitarian”.
- Scope and Claims – The precise wording that defines the technology that is seeking protection.
- Exclusions – What technology will be prevented from leveraging this protection.
- Term – How long the protection will last.
- Examination Procedure – The method of examining an application, including whether the examination will be performed upon receipt of the application or whether it will be done at some later time.
- Publication – When the application will be posted for public access.
- Infringing Acts and Enforcement Procedures – The definition of the various acts that constitute infringement and the legal processes that parties must follow to obtain legal judgments in the event of a dispute.

Two studies will be referenced heavily in the analysis. The first study was performed by the European Commission in 1995. Its purpose was to examine the various forms of utility models in Europe and recommend a path to harmonization across the community. The second study was performed by the Australian Advisory Council on Industrial Property in 1995. It explored the various aspects of the Australian form of minor patents, petty patents. Shortly after the study the name was changed from petty patents to innovation patents. Both studies contain survey and statistical data that complement the analysis.

Coverage

There are primarily two schools of thought regarding what should be covered under minor patents. The first option is that minor patents should work to “fill the gap” in utility and design patent protection. This gap includes a modest amount of inventions ranging from vessel hulls to baluns³³ that are ineligible for utility patents for failing to meet the non-obvious standard and

³³ A transmission line transformer for converting **balanced** input to **unbalanced** output or vice versa. Source:

design patents because their design is inseparable from their function. The second option suggests going further with the scope of minor patents and extending the coverage to all subjects that are currently patentable under a standard patent, with a lower standard of invention that would also include the gap in protection between design and utility patents. Despite the fact that this approach also happens to “fill the gap” in protection, it is more true to the minor patent concept because in most cases it encompasses all of the subject matter of standard patents, including processes, computer software, and business methods.

While there are a wide variety of implementations, the general trend in the lower tier of protection is progressing away from being only a ‘gap filler’. Australia, with its petty patents (and just recently its innovation patents) has moved toward a true minor patent concept. Further, this idea is the basis for protection in France, Belgium, The Netherlands, The United Kingdom (proposed as of 1994), Germany, Austria, Ireland, and Denmark. The remaining countries in Europe that have tiered patents - Greece, Spain, Portugal, Italy, and Finland – and the proposed minor patent protection in the United States – all base their protection on the narrower ‘gap filling’ protection.

Inventive Level

There are two standards of inventiveness, under several different names, that appear in the various implementations of protection. Nine of the European countries studied had minor patent systems that protect a lower inventive step than that for required standard patents. The study of the European systems noted several advantages to having a lower inventive step requirement:

Inventions involving only a small inventive step are frequently very useful and of considerable commercial importance . . . the importance of ‘ordinary’ technological development can be expected to grow in future by comparison with ‘extraordinary’ development . . . In the systems which protect inventions with only a small inventive step, inventions are publicized which would otherwise have been kept from the public for reasons of confidentiality. This enables other inventors to build on the initial invention.³⁴ (citations omitted)

The study of the Australian petty patent system also concludes that a reduced inventive step requirement would be beneficial for slightly different reasons. At the time of the study, the existing system retained the same inventive step requirement as a standard patent, resulting in a system that was not widely utilized. Furthermore, the opinions of industry professionals and patent lawyers confirmed that there was a clear demand for a lower requirement. Two benefits of this approach are “filling the gap” between design and utility patents and providing protection for lesser inventions that apply to small businesses.³⁵

The minor patent proposal in the U.S. also suggests a lower inventive step, moving from “novel and non-obvious” for a standard patent to “original with a utilitarian function” in the proposal. This is a much lower standard of invention than that of the other systems referenced,

<http://www.electronics-tutorials.com/basics/baluns.htm>

³⁴ European Commission. “The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 61.

³⁵ Australian Advisory Council on Intellectual Property. “A Review of the Petty Patent System.” 1995.

but it corresponds to a different approach to protection and should not be compared directly.³⁶

The remaining four countries in Europe that were studied (including France) adopted an inventive step standard that is the same as that for standard patents. Neither the European nor the Australian study submitted any advantages to this approach, and statistics cited by the European report reinforce the idea that the lack of a lower standard substantially limited the utilization of the French System. Note in the following figure that the volume of utility model protection filed for in one year in France was less than 5% of its patent volume while the other countries that use a lower inventive step show utilization between 70 and 200%.

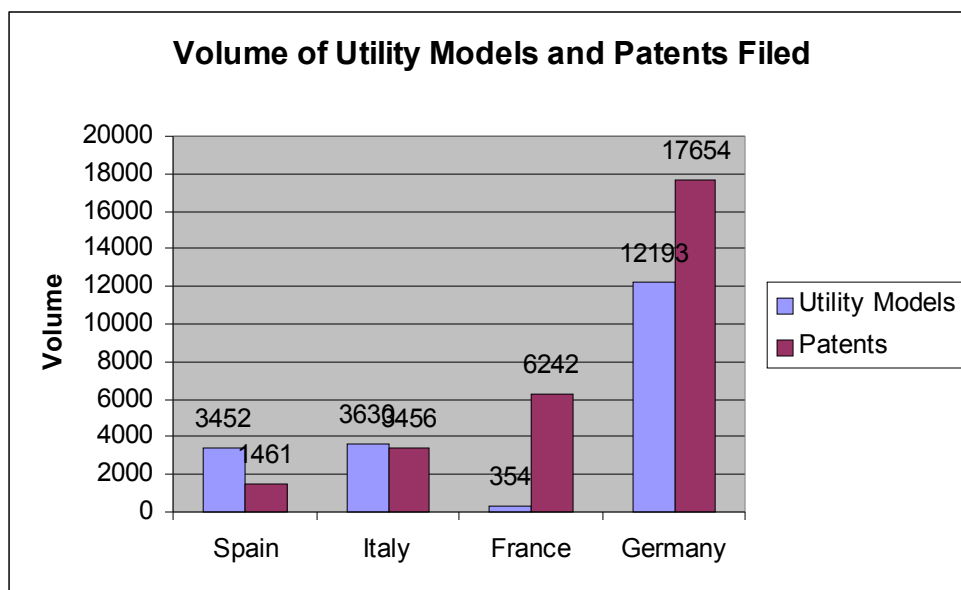


Figure 2: Volume of Utility Model Applications in one year.³⁷

Scope and Claims

The ways of defining the scope of claims (or no claims, in some cases) vary widely. Five European countries (Greece, Spain, Portugal, Italy, and Finland) require that the registration include a three-dimensional model of the invention instead of claims. The minor patent proposal in the U.S. also adopts a similar view with the requirement of detailed drawings. However, the European study commented:

³⁶ It is beyond the scope of this paper to make judgments on the specific wording of different patent systems.

³⁷ European Patent Office, Epidos/Inpadoc, position at 9.7.1993; Ifo patent statistics; and European Commission calculations.

The three-dimensional form requirement derives from the history of utility model protection, which was originally confined to tools and utensils . . . This was an area which was not covered by industrial design law or by patent law, so that as well as easing the load on the patent office the new right was intended to close a gap . . . The situation no longer obtains[sic] today . . . Thus the grounds for introducing the three-dimensional form requirement do not correspond to present needs.³⁸

Further, the study of the Australian petty patent concluded that, “Dispensing with claims altogether would have the attraction of making filing simple and cheap. This is likely to be at the expense of certainty leading to more complexity rather than simplification in interpreting the precise scope of protection.”³⁹

The Australian study also discussed the possibility of restricting the scope of claims to the embodiment of the innovation particularly described, effectively narrowing protection. However, it warns that such restrictions could affect protection on the way the invention functions and that such restrictions would be hard to define in terms of current law. Therefore, it recommends that no statutory limit be placed on the scope of protection, based on the idea of a self-compensating system where the scope of claims adjusts to the significance of the invention.⁴⁰ The remaining countries in Europe that were studied have followed this recommendation.

There is also a question regarding whether the number of claims should be restricted. The Australian study noted that several patent attorneys complained that a limit on the total number of claims makes it difficult to define what the inventor intends to protect. The study also noted that fewer claims tended to make drafting more difficult, thereby raising the cost to file. It recommends that the number of claims be restricted to five. No concrete evidence is cited to support this number. However, it states that the restriction would be more in line with the spirit of covering simpler advances and making the system easy to use.⁴¹

Exclusions

The studies also discussed whether some classes of inventions should be excluded from minor patents. The European report first looked at inventions that were unprotectable as a standard patent. Under Article 52(2) of the European Patent Convention, the following are not protectable:

- Discoveries, scientific theories and mathematical methods;
- aesthetic creations;
- schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
- presentations of information.

³⁸ European Commission. “The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 62-63.

³⁹ Australian Advisory Council on Intellectual Property. “A Review of the Petty Patent System.” 1995.

⁴⁰ Ibid.

⁴¹ Ibid.

Further, Article 53 excludes the following inventions:

- Inventions the publication or exploitation of which would be contrary to ordre public or morality, provided that the exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States.
- plant or animal varieties or essentially biological processes for the production of plants or animals; this provision does not apply to microbiological processes or products thereof.

The study recommends, without comment that these restrictions be carried over to utility model protection.

The second class of inventions that was considered for exclusion by the European study was substances and compositions of substances, some common examples being adhesives, sizing agents, or sealing compounds. The reasoning given for this exclusion was that the protection of these substances serves no purpose in some cases, implying that it might serve a purpose in other cases. An additional concern was that these substances would not be verifiable in courts due to their complexity. However, this limitation is not specific to this technology. Thus, “it would appear necessary, therefore, to include compositions of substances in the scope of utility model protection. It is difficult to say whether all substances should be covered. But there should not be a blanket exclusion”⁴²

The third class of inventions considered for exclusion by the European study was improvements on processes. The concern was that the lower inventive step requirement might allow protection for processes that should not receive it because they are usually known as “know how” inventions. There is also a potential difficulty in infringement disputes because of the uncertainty of whether a particular process was used to create a product. The European study acknowledges that there might be a desire by companies to seek this protection. At the time that the study was performed, there was only one country, Ireland, utilizing this system, and the practical experience available for analysis was insufficient. Therefore, the study makes no recommendation regarding the exclusion of process inventions.⁴³

Term

Suggestions for the term of minor patent protection range from ten years down to three years, with several implementations having one or more renewal periods. Most of the parties surveyed in both studies agree that protection should receive a term much shorter than that of standard patents. However, the European study recommends a ten-year term of protection for minor patents, half of a standard patent term, only because that is the term most frequently used in the member states.

The Australian study examines the idea in more detail. According to submissions by

⁴² European Commission. “The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 65-66.

⁴³ European Commission. “The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 66-67.

industry, the six-year term of the petty patent was unattractive, as a standard patent could be obtained for a similar cost (remember that the petty patent had an inventive step requirement that was the same as that for a standard patent). Submissions to the study favored a ten-year term, and most supported some sort of renewal process on a three-year cycle. The minor patent proposal in the U.S. favors a much shorter term of 3-5 years because the protection is intended, primarily, to address issues with fast moving technology.

One interesting idea that came from submissions to the Australian study recommended that some proof that the invention had been implemented should be required to extend the term of protection. This idea parallels that of Dr. Lee Hollaar of the University of Utah, who suggests that adopting a 'use' test would help defend against companies' practice of defensive patenting because defensive patents are never pursued commercially. A reduction in defensive patenting combined with a short-term allowance would also reduce the patent thicket problem that plagues incremental innovation in the current patent system in the United States because there would be fewer patents granted for a shorter duration.⁴⁴

In the final recommendations, the Australian study suggested an 8-year term of protection with yearly renewals increasing in cost after a three year period. Further, the study believes that it is not feasible to adopt a 'use' test as suggested in the submissions, but gives no further reasoning.⁴⁵

Examination

How examination is handled is a key aspect of the minor patent idea. The European study noted that none of the systems allowed for a full examination similar to that of a standard patent upon receipt of the application. Whether they allowed examination at all before infringement proceedings and the degree to which they did varied.

The study surveyed patent attorneys about optional searches and searches at the request of third parties in countries that had no current implementation. In response to the question of whether optional searches were (important / useful) the results were: Spain (63% "very important", 55% "very useful"), France (45% "very important", 39% "very useful"), and UK (43% "very important", 38% "very useful"). The study concludes that these results are similar to that of the other countries. Furthermore, in countries that did allow optional searches, the option had been increasingly utilized since it was offered. For example, in Germany, the number of requests for searches rose steadily from 6.4% of applications to 13.5% of applications in a five-year period.

The study recommends that applications not be examined for novelty or an inventive step upon receipt, but that an examination for formal conditions (the application must contain all of the necessary materials and the subject matter must be protectable by law) be performed. The purpose of the formal examination would be to eliminate those applications that are excluded by law from protection.⁴⁶

⁴⁴ Interview with Dr. Lee Hollaar 7/14/2004.

⁴⁵ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 36-37.

⁴⁶ European Commission. "The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 70-73.

The Australian study examines a greater variety of options, and submissions to the report disagree with that of the European finding in some areas. Opinions generally supported full examination of applications similar to that of standard patents because of concerns over the presumption of validity. However, there was also reluctant support for examination before the commencement of legal proceedings. As an alternative to full examination, some submissions to the study suggested a system that would require a patent attorney to file a statement confirming that a prior art search had been done and that the invention was truly novel.

In the study's conclusions, the advisory council had a very difficult time with this subject but ultimately recommended a system based on examination before legal proceedings. After three years, if a request for examination had not been carried out, the application would be required to be examined with an appropriate fee. The fee for third party requested examinations should be substantial to prevent abuse. Several reasons were given for this decision. First, the proposal would allow quick, low-cost initial applications targeted to fast moving technology. Second, it prevents inventions from being covered for the full term of 8 years without examination. Third, it allows competitors to be aware of applications early to avoid being ambushed.⁴⁷ However, the council includes a strong caution with this proposal:

As noted previously, the Patent Office conducts substantive examination of all petty patent applications. Current petty patent fees do not enable the Office to fully recover the costs of this examination. This situation is manageable as the number of petty patent applications is relatively low. If our recommendations make innovation patents attractive and as a result the number of applications increase markedly, we would have concerns over the ability of the Patent Office to continue substantive examination under the existing cost structures.⁴⁸

The minor patent proposal in the U.S. takes a slightly different approach. There is no substantive examination at any time outside of an infringement proceeding except for formality requirements upon receiving the application. This approach is very similar to that of the copyright system. In this case, however, the lack of substantive examination is not likely to lead to uncertainty because only exact copying of the design is protected. The extremely narrow scope of the protection ensures that infringement will be simple to determine using precedents from copyright law.

Publication

In the majority of implementations of minor patents, applications were published either at registration, or in countries that allowed for examination, immediately after acceptance. At the time of the study in Australia, Italy and Ireland allowed for an 18-month grace period before applications were published. Submissions to the study from industry cautioned that the lack of early publication, in some cases, could lead to being "ambushed"⁴⁹ by the patent. Submissions to

⁴⁷ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 41-43.

⁴⁸ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 43.

⁴⁹ Being "ambushed" refers to the practice of withholding the contents of a patent as long as possible, hoping that other

the study also favored publishing applications that were denied protection, while some cautioned that publishing applications that are not granted would reduce the incentive to use the system.

The Australian study recommends that applications should be published after an examination for formality, which would only check that the subject matter is not excluded from patent protection by law and that all materials are included in the application. They determined that three months would be a reasonable time to expect this examination to complete.⁵⁰

Publication for the minor patent proposal in the U.S. is not an important factor because the protection covers only exact copying of visible parts that are publicly available and marked. Furthermore, using infringement guidelines from copyright law would require both access to the article and substantial similarity. Therefore, the proposal allows for publishing only an index of registered articles, with their details and drawings to remain confidential for the term of protection.

Infringement and Enforcement

In most cases, the definition of infringement and the procedures for prosecution and enforcement of minor patents are the same as those for standard patents. Any deviations are because of circumstances of law or unique characteristics of the protection.

Because minor patents aim to cover the same subject matter as standard patents, the European study recommends that they be handled in the same way. However, it is careful to note that uncertainty inevitably results from not having examination prior to the commencement of litigation. Therefore, it recommends that the court presiding over infringement proceedings be given the ability to decide whether an examination should be performed; it should not be automatic for either the plaintiff or the defendant.⁵¹

The Australian study contains a more detailed analysis of minor patent enforcement that pays particular attention to the cost and complexity of enforcement. As part of this analysis, it first notes that inexpensive protection for incremental advances is not useful without a correspondingly inexpensive litigation scheme. It observes that the apparent modest success of the petty patent system is most likely in spite of the high costs of litigation, and the problem of litigation cost is serious where the parties are not equally matched financially.⁵² There were a number of possible solutions suggested during the submission phase:

- Create a form of infringement where a binding opinion by an authority regarding infringement would be required before any infringement action would be available. The spirit of this suggestion was to provide an initial low cost and speedy opinion that might facilitate settlement.
- Create a separate lower court or a body attached to the patent office to hear conflicts.
- Require a preliminary decision from a third party before court action for infringement

firms will adopt the technology. After the patent becomes public, those firms may now be sued for infringement.

⁵⁰ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 43.

⁵¹ European Commission. "The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 74.

⁵² The petty patent system dealt with litigation in exactly the same way as it does standard patents.

could commence, enforceable by either party unless both agreed to waive it. Again, the spirit of this suggestion would be to urge settlement.

- Create a lower court with substantial experience in patent law and disallow appeals to a higher court.
- Provide the ability for a third party to seek revocation of a patent via an examination before litigating. This process would be similar to post-grant opposition⁵³ with shortened evidence stages. An appeal to a court would be an option, and the examination opinion would be provided to the court if litigation was pursued. However, findings of fact would not be appealable, and the court would only consider issues of infringement, not validity. The separation of these two aspects of litigation would alleviate fears about the patent office handling infringement issues.

The Australian study makes several observations about these potential solutions. First, it considers having the patent office preside over infringement actions, finding that it would be the best option. After all, the patent office, during its normal course of business, decides principle issues on construction of claims, validity of claims, and determining validity with respect to novelty, all key abilities in a patent infringement proceeding. Opponents of this approach point out that such hearing officers would not be trained in the law of procedure or evidence, but this concern could be mitigated by having simplified procedures augmented by appropriate training. This option should most certainly have an appeal process to a higher court, and in most cases the hearing decision would either be accepted as final or would encourage out of court settlement.⁵⁴ This approach is the preferred approach:

We are thus of the opinion that if it were constitutionally possible to do so, jurisdiction ought to be conferred upon the Commissioner of Patents and the Commissioner's delegates to hear and determine both revocation and infringement proceedings in respect of innovation patents subject to appeal to the Federal Court. We recognise, however, that this does not appear to be constitutionally possible. We are left therefore to consider second best solutions.⁵⁵

The Australian Study next separates revocation from infringement and deals with each independently. Constitutional issues do not arise in Australia when revocation powers are given to the patent office because they perform this function as part of normal operations. Therefore, it concludes jurisdiction over revocation should be given to the patent office. However, this recommendation does not apply in cases where there are both revocation and infringement issues because these considerations are often interdependent. Drawing upon past examples where issues of validity and infringement were determined separately, the study observed that the complexity of the trial increased.

Next, the Australian study considers the proposal that parties should be required to obtain a non-binding judgment from the patent office prior to infringement proceedings – to be used as an advisory opinion to the courts. This option is likely to do nothing more than add an extra step into proceedings, and it is discouraged. Seeing no other option, the study reluctantly states:

⁵³ The process by which a third party may apply to have a patent revoked after it has been granted by the patent office.

⁵⁴ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 52-57.

⁵⁵ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 57-58.

[I]n the light of the constitutional constraints as we understand them, and as our national court structure currently exists, the option of determining issues of infringement in a non-judicial tribunal, or in the original jurisdiction of the inferior courts, does not appear to be open or viable . . . We believe that the issue of enforcement of innovation patents at a lower level than the Federal Court or the Supreme Courts of the States is one of importance. It should be addressed at a wider level by a study dedicated to the question and we consider that priority should be given to the establishment of such a study.⁵⁶

The minor patent proposal in the U.S. proposes a very similar type of enforcement to that which was preferred in the Australian study. It outlines an arbitration process overseen by Special Masters appointed by the Registrar, and appeals may be taken to the Court of Appeals for the Federal Circuit. Because the determination of infringement is relatively easy under this proposal (using the substantial similarity standard with knowledge from copyright) and because there are no claims involved, the volume of appeals to higher courts should remain low.

⁵⁶ Australian Advisory Council on Intellectual Property. "A Review of the Petty Patent System." 1995 pp 58-59.

Applying the tiered patent concept to the United States

The last section of this paper established a framework and uncovered two distinct trends in this new type of protection: protection for articles intended to fill the gap between utility and design patents and protection that could possibly help the current patent system cope with a new environment. This paper will now revisit the problems in the United States patent system and explore a number of possible scenarios that might play out when applying the tiered patent concept to the United States.

Patent Quality and Cost

As discussed earlier, the current issues with patent quality have two root causes in the United States patent system: there are too few examiners with too little time to spend on each application and there is a lack of sufficient prior art databases for certain technologies. The tiered approach would make the minor patent more attractive than a standard patent for some industries, reduce the volume of standard patent applications through increased fees on top tier applications, and allow the patent office to dedicate more resources to improving patent quality.

Firms would be lured away from filing standard patents because minor patents would be more attractive. Depending on the type of technology, firms may be drawn to a number of different benefits provided by the minor patents. With a cheaper and faster alternative, producers of fast moving technology would opt for the minor patent protection and file fewer standard patent applications as a result.

It would also be possible under this tiered system to raise fees for standard patents. In the past, it has not been advisable to raise patent fees substantially because of the detrimental affect this move would have on independent inventors and small businesses that could not afford the increase. Higher fees would enable the patent office to devote more time and possibly more examiners to examining each application, and the existence of a cheaper form of protection would provide an alternative for those that could not afford the increase.⁵⁷ Having two cost structures would also encourage businesses to use the cheaper and shorter form of protection for technologies with questionable commercial benefit. If the increased cost cannot be justified, then 20 years of protection is probably unnecessary.

A tiered patent approach would also increase the size of the public domain because the lower standard of invention would encourage firms to seek protection for works that would not have qualified under a standard patent. The increased volume of works in the public domain would benefit society by opening up more avenues for derivative works, and it would benefit the patent office by having a greater database of prior art available to apply to examinations of standard patents.

Opponents of the tiered system argue that the advantages of the system, lower inventive standards and lack of examination, turn out to be its main drawbacks. John Richardson of Ladas and Perry LLP warns that “these two features lead to the grant of what are essentially inchoate

⁵⁷ Interview with Dr. Lee Hollaar 7/14/2004.

rights since it is difficult for competitors to determine what is or is not the subject matter of an enforceable right. This it is argued leads to uncertainty and economic inefficiency.”⁵⁸ As a result, there is a possibility of having a large volume of unexamined rights that may be deemed valid only through litigation. Dr. Steve Merrill at the National Academies expresses concern that instead of opting for the lower tier of protection in some cases, companies will instead begin filing applications for both tiers of protection simultaneously.⁵⁹ Of course, this would result in a net increase in application volume, contrary to the stated goal of tiered protection. However, revisiting the issue in 2001, the European Commission acknowledged these stated downsides and offered the observation that “none of the disadvantages described above has been observed in the Member States where protection by utility model is in place.”⁶⁰

Gap in Coverage

Recent passage of legislation addressing the ‘gap’ in protection between design and utility patents suggests that there is a legitimate business need for this form of protection. Logically, one would conclude that if this protection is effective for vessel hulls and semiconductor masks, it is likely that other forms of technology might also benefit from this protection. These works often require large amounts of resources to develop but can be copied in a matter of days with methods and equipment available cheaply.

This protection, still present in a few European countries and proposed in the United States, would provide narrowly tailored protection to this category of works only. This approach would be unlikely to have any substantial effect on the current patent system because it would not cover any subject matter currently patentable and the expected number of applications each year would be negligible compared to the volume of standard applications. For example, the Vessel Hull Design Protection Act has resulted in only 156 registrations in four years.⁶¹

The tiered patent approach would also accomplish the goal of filling this gap in coverage. The lower standard of invention of minor patents would extend to works unable to meet the “non-obvious” test for a standard utility patent. Again, the ability to fill this gap in coverage would have no effect on the patent system as a whole.

Adapting to new technology

A tiered patent system can also address concerns with the sluggishness of the current patent system and unreasonable terms of protection. In particular, the lack of examination for novelty or an inventive step results in examination periods that last only six months as opposed with two to four years.⁶² The faster grant process allows firms to proceed to market or pursue

⁵⁸ Richards, John. “Petty Patent Protection.” Juris Publishing and Sweet & Maxwell. (updated version 2002).

⁵⁹ Interview. Dr. Steve Merrill. 7/15/2004.

⁶⁰ European Commission. “Consultations on the impact of the Community utility model in order to update the Green Paper on the Protection of Utility Models in the Single Market (COM(95)370 final).” 2001. pp 5.

⁶¹ U.S. Copyright Office. “The Vessel Hull Design Protection Act: Overview and Analysis” November 2003. pp 11.

⁶² European Commission. “Consultations on the impact of the Community utility model in order to update the Green Paper on the Protection of Utility Models in the Single Market (COM(95)370 final).” 2001. pp 4.

venture capital more quickly. Furthermore, some firms use minor patents as interim protection pending the issuance of a standard patent. In the survey done by the European Commission, “this reason for applying is given roughly the same measure of importance as the low cost of application where the applicant is uncertain of the invention's commercial value.”⁶³

While no change would be needed to the current patent system to accommodate a tiered approach, the possibility of addressing unreasonable patent terms for some technologies becomes a beneficial result. Many firms seeking protection on fast moving technology have no need for the 20-year term of protection. Therefore, in response to the increased practice of patenting fast moving technology and its faster rate of obsolescence, patent renewal rates are on the decline.⁶⁴ Therefore, the tiered patent model becomes attractive because firms need not expend the full cost for a standard patent if they only intend to use a fraction of the benefits.

There was little opposition to the benefits suggested by quick registration outside of those already expressed with the repercussions of having no initial examination. Industry tended to disagree with short terms of protection, but one must keep in mind that it is in their best interest to obtain long terms of protection.

If the patent system sees similar challenges in computer software and business methods as it does with fast-moving-technology, then it should share some of the perceived benefits of a minor patent approach. Less pendency⁶⁵ duration, lower fees, and a shorter term of protection are all characteristics of minor patents that would benefit software and business methods. The ability to raise fees substantially on standard patents, and thus enable more thorough examination, would address many concerns that patents are being granted that should be declined.⁶⁶

There are a significant number of experts who argue that software and business methods should be excluded from any form of patent protection altogether. However, it seems unlikely in the current political climate of the United States that this idea would be entertained. Minor patents could provide an acceptable compromise between those who oppose any form of protection and those who insist that 20 years of protection is necessary. The 3-4 year term of a minor patent would provide coverage during the most important time for these technologies and eliminate concerns that companies would retain rights to technology that no longer has commercial significance.

Applying minor patent protection to software and business methods would raise examination quality by greatly enhancing the availability of prior art. As Dr. Lee Hollaar argues in a forthcoming paper:

We saw the effect of discouraging the filing of applications when the USPTO's policy was not to grant patents on software-based inventions, or at least make it difficult for applicants to get such a patent. Software developers didn't file

⁶³ European Commission. “The Protection of Utility Models in the Single Market COM (95) 370 final. 1995. pp 22.

⁶⁴ Klenow, Peter J. “Stronger Protection or Technological Revolution: What is Behind the Recent Surge in Patenting? A Comment.” University of Chicago.

⁶⁵ The amount of time necessary for a patent to go from application to grant.

⁶⁶ Interview, Dr. Lee Hollaar 7/14/04.

applications on their advances because they didn't believe that patent protection was available, resulting in a gap in the USPTO's prior art collection corresponding to the formative years of software . . . We are still paying for that gap in the prior art collection in terms of patents being issued on old techniques, and we cannot afford to have that happen again.

But a reduced filing fee for the "mini-patent" would encourage filings, and if registration including a description of the invention were required, the building of the patent prior art collection.⁶⁷

If Congress continues to allow patents on software and business methods, prior art will be a key area of discussion, and the minor patent concept should be considered in this discussion to improve the quality of this category of technology.

Defensive Patenting and Patent Thickets

With firms adopting the use of minor patents, defensive patenting becomes less advantageous and patent thickets may be cleared much more quickly. Raising the cost of standard patents contributes to a corresponding reduction in the volume of standard patents filed. Increased cost also simultaneously discourages defensive patenting behavior because the likelihood that a patent is used in litigation or licensing remains the same while the fixed cost increases. If the proposals of Dr. Lee Hollaar are implemented, a tenfold increase in cost would insure that only valid and pursuable technologies are protected by the standard patent.

However, the effects of a tiered system on patent thickets are speculative and theoretical. No current systems have existed long enough to derive some indication of their success in these areas. Certainly, the introduction of the minor patent, a protection with a lower cost and lower inventive step requirement, would exacerbate to some degree the patent thicket problem because more incremental inventions would be able to be patented for a lower cost. Whether the short duration of minor patents and the decrease in standard patent problem might offset these effects remains to be seen.

Other Considerations

If the United States pursues a tiered patent approach for patent reform, there are a number of obstacles outside the confines of the patent system that will have to be considered.

The first consideration is the many international treaties that exist to harmonize and facilitate the interoperation of different patent systems. The Patent Cooperation Treaty (PCT), the Portugal Convention, and TRIPS⁶⁸ all set out procedures for interfacing with other patent systems, minimum standards for protection, and even guidelines about what subject matter. However, many countries have successfully drafted minor patent protection to comply with these

⁶⁷ Hollaar, Lee. Unreleased working draft: "A New Look at Patent Reform." July 22, 2004 pp 4-5.

⁶⁸ Trade-Related aspects of Intellectual Property rights

agreements, so there is no reason for concern that it cannot be done.

Secondly, an issue of particular concern to those in industry who work directly with patents is the commercial value of protection. Dr. David Martin of M-CAM Inc. cautions that in order to be truly useful as an asset to a business, protection must be able to be appraised.⁶⁹ Similar to performing a title search and title insurance on newly purchased real estate, there must be procedures in place to assess the value of patents from an accounting and insurance perspective. The only authorities currently available to appraise intellectual property are those who have sparked the patent reform debate by granting patents on questionable technology.

This problem should be of particular concern to those drafting minor patent legislation because of the lack of substantive examination before the right is granted. While standard patents have some presumption of validity because they are examined before being granted, minor patents must be assumed to have no validity until they are examined either through litigation or by request of the author. It would be reckless to create a new form of patent protection without concurrently addressing banking and securities' use of these property rights.⁷⁰

An in-depth analysis of these two considerations is beyond the scope of this paper. Nevertheless, they are important issues to address in any serious discussion of minor patent protection in the United States.

⁶⁹ Interview Dr. David Martin 7/21/2004.

⁷⁰ Interview, Dr. David Martin 7-21-04. For further reading, see also: Martin, David E. "Innovation Risk Management – What you never thought to ask." *Company & Shareholder Magazine*, Feb. 2004.

Conclusion

There is not enough data available to provide a definitive answer about the effects of a tiered patent system on the United States. It certainly speaks well for the approach that there have been similar systems existing for decades, and these systems are evolving into one or two distinct approaches. In Australia, the legislature accepted the recommendations of the 1995 study, and the Innovation Patent continues to be an integral part of the Australian patent system. In Europe, the European Parliament has responded to the 1995 studies with a proposal in 2001 and an amended proposal in 2002 for community utility model protection, but they have yet to take the final steps. Meanwhile, the vast majority of countries in the European Union have adopted some form of tiered patent system.

In the United States, the two studies that have been referenced throughout this paper, one by the National Academy of the Sciences and one by the Federal Trade Commission, arrive at similar conclusions. These conclusions, nevertheless, are quite conservative, advocating “tweaks” to the system instead of reform. The National Academies study recommends more strictly adhering to the obviousness standard, instituting an open review procedure, additional resources for the patent office, and other minor changes.⁷¹ The FTC study echoes these very same recommendations with little deviation. However a tiered patent system was not examined as part of this study or the FTC study.

While there is still much research to be done on the role of a tiered patent model in the United States, the potential benefits abound. With the increase in the quantity of prior art and additional time to examine each application, overall patent quality could benefit substantially. The tiered patent model also neatly addresses concerns about protecting those inventions that lie outside of the umbrella of protection of design and utility patents. Those who decry the inappropriately long terms of protection for software, business methods, and fast moving technology find relief in the expedited grant process and the 4-year term. The most promising benefit of moving to a tiered patent approach is that it requires no change in current law, so there is little chance of breaking the current system.

However, the tiered patent model is not without its downsides. In addition to the fact that it would be considered more of a revolutionary approach than an evolutionary one, there is a limited amount of data available about the idea's success in the real world. Several countries have had a similar type of protection for decades, but most have made significant changes recently. The effects of these changes have yet to manifest themselves. Furthermore, there remain serious concerns that the minor patent concept would result in a large pool of patents with little presumption of validity.

In the United States two key pieces of information are missing: an economic analysis of the impacts of this approach on the unique aspects of our system and a survey of U.S. companies willingness to take advantage of this type of protection. Because patent reform is becoming a major issue in the United States, a tiered patent system should be further examined as an alternative solution to the current problems.

⁷¹ NAS summary of conclusions pp 68-69.

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Appendix I: Worldwide Minor Patent Features

Source: <http://www.ladas.com/Patents/PatentPractice/PettyPatents/PettyP07.html>

COUNTRY	DATE OF FIRST LAW	DURATION OF PROTECTION	NAME	SUBSTANTIVE EXAMINATION	NUMBER OF APPLICATIONS 1999
ANDEAN PACT	1992	10 years	Utility Model	yes	
ARGENTINA	1996	10 years	Utility Model	Yes - deferred	426
AUSTRALIA	1979/2001	8 years	Innovation Patent	no	
AUSTRIA	1994	10 years	Utility Model	no	964
BELGIUM	1987	6 years	Short Term Patent	no	
BELARUS	1997	8 years	Utility Model	no	141
BRAZIL	1945*	10 years	Utility Model	yes	2586
BULGARIA	1993	10 years	Utility Model	yes	108
COLOMBIA	1992	10 years	Utility Model		107
CHILE	1991	10 years	Utility Model	yes	98
CHINA	1985	10 years	Utility Model	no	44369
CZECH REPUBLIC	1992	10 years	Utility Model	no	1384
DENMARK	1991	10 years	Utility Model	no	442
FINLAND	1993	8 years	Utility Model		776
FRANCE	1968	6 years	Utility Certificate	no	
GERMANY	1891	10 years	Gebrauchsmuster	no	23584
GREECE	1988	7 years	Utility Model	no	370
GUATEMAL	1986	10 years	Utility Model	yes	24
HUNGARY	1992	10 years	Utility Model		334
INDONESIA	1991	5 years	Simple Patent	yes	
IRELAND	1992	10 years	Short Term Patent	no	
ITALY	1934	10 years	Utility Model	no	2962
JAPAN	1905	not > 15 years	Utility Model	no	10283
KOREA	1961	not > 15 years	Utility Model	yes - but deferred	30650
MALAYSIA	1986	15 years	Utility Innovation	yes	
MEXICO	1991	10 years	Utility Model	yes	370
NETHERLANDS	1995	6 years	Short Term Patent	no	
OAPI	1977	10 years	Utility Model	Limited	
PANAMA	1996	10 years	Utility Model	Published for opposition	
PERU	1992	10 years	Utility Model	No	88
PHILIPPINES	1947	15 years	Utility Model	yes	1367
POLAND	1924	10 years	Utility Model	yes	70
PORTUGAL	1940		Utility Model	yes	12
RUSSIA	1992	8 years	Utility Model	no	3444
SLOVAKIA	1992	10 years	Utility Model	no	351
SPAIN	1929	10 years	Utility Model	no	3264
TAIWAN	1944	12 years	Utility Model	yes	17954
TURKEY	1995	10 years	Utility Model	no	318
UKRAINE	1993	8 years	Utility Model	no	204
URUGUAY	1976	10 years	Utility Model	no	71
VIET NAM	1995	10 years	Utility	yes	33

Appendix II: Worldwide Minor Patent Features Cont'd

<http://www.ladas.com/Patents/PatentPractice/PettyPatents/PettyP07.html>

COUNTRY	NOVELTY REQUIREMENT	SUBJECT FOR PROTECTION	COMMENTS
ANDEAN PACT	same as for patents	device, tool, implement, mechanism, or other object or part thereof etc.	
ARGENTINA	6 month grace period for inventor's disclosure outside Argentina	tools, working instruments, devices, objects used for practical work	
AUSTRALIA	same as for patents	same as for patents	lower standard of inventiveness than for patents
AUSTRIA	6-month grace period	products, devices, machines, processes, and programming logic	lower standard of inventiveness than for patents
BELGIUM	same as for patents	same as for patents	same as for patents
BRAZIL	same as for patents	tool, working instruments, utensils, etc.	
BULGARIA	same as for patents	shape, etc. of products, tools, apparatus, etc.	Inventive step is not required
CHILE	same as for patents	instruments, apparatus, tools, devices, parts	apparently a lower standard of inventiveness than for patents
CHINA	same as for patents	shape or structure of product	lower standard of inventiveness than for patents
CZECH REPUBLIC	6-month grace period for own publications	all tangible items including chemicals	

DENMARK	same as for patents	all tangible items including chemicals	lower standard of inventiveness than for patents, cumulative protection possible
FINLAND	same as for patents	shape or design of a device	lower standard of inventiveness than for patents
FRANCE	same as for patents	same as for patents	no coexistence with full patents
GERMANY	use outside Germany not a bar; 6-month grace	all inventions except processes and methods	lower standard of inventiveness than for patents; can be cumulative with
GREECE	same as for patents	3D object with definite shape or form	lack of Design Law leads to use of Utility Model Law as substitute
GUATEMALA	same as for patents	device, tool, implement, mechanism, etc.	
HUNGARY	use outside Hungary not a bar	form, structure, etc. of an object	
INDONESIA	same as for patents	same as for patents	novelty exam required before suit
IRELAND	same as for patents	same as for patents	novelty exam required before suit; lower standard of inventiveness than for patents
ITALY	same as for patents	machines, machine parts, tools, etc.	
JAPAN	same as for patents	shape, construction, etc. of an article	lower standard of inventiveness than for patents
KOREA	same as for patents	shape, construction, etc. of an article	inventive step required
MALAYSIA		similar to patents	
MEXICO	same as for patents	objects, utensils, apparatus or tools	no requirement for inventive step

NETHERLANDS	same as for patents	same as for patents	novelty exam required before suit can be brought
PHILIPPINES	local novelty only required	non-inventive new form, etc. of tools or products	
POLAND	same as for patents	shape, construction, etc. of an object	
PORTUGAL	same as for patents	tools, utensils, containers, etc.	lower standard of inventiveness than for patents
RUSSIA	use outside Russia not a bar	construction of production means/articles	no requirement for inventive step
SLOVAKIA	6-month grace period for own pubs	all tangible items including chemicals	
SPAIN	unlike patents; local novelty only	utensils, instruments, tools, apparatus, etc.	Inventive step required
TAIWAN	same as for patents	shape, structure or construction of article	lower standard of inventiveness than for patents
TURKEY	twelve month grace period	anything patentable except for processes and chemical products	no need for inventive step
UKRAINE	same as patents	devices	
URUGUAY	similar to patents	tools, working instruments, utensils, etc.	
VIETNAM	same as patents	anything patentable	no need for inventive step