

The Case for the U.S. Patent and Trademark Office’s Adoption of an Open-Source “Bounty” System for Reviewing Business Method and Software Patents, in Light of the Patent Infringement Battles Featuring the U.S. Financial Exchanges that Have Been Waged in Recent Years

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INTRODUCTION

[¶1] Today, a salient battleground in the field of intellectual property law can be found in the financial and software patent arenas. Relatively small companies, armed with highly controversial patents granted by the U.S. Patent and Trademark Office (“PTO”), have been taking on some of the world’s largest financial exchanges in patent infringement suits. These companies have sought to extract royalties and licensing fees from the exchanges by alleging that the exchanges have been infringing upon their patents.² In response, the exchanges have frequently contested the validity of the controversial patents in legal actions in U.S. federal courts.³ However, the exchanges ultimately agreed to settle a number of these infringement suits.⁴

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² *See, e.g.*, discussion *infra* Part V.A (discussing the patent infringement suit brought by the financial firm Mopex Inc. (“Mopex”) against the American Stock Exchange (“AMEX”)); discussion *infra* Part V.B-C (discussing the patent infringement suits brought by the financial firm eSpeed against three of the largest commodities exchanges in the U.S. as well as several international exchanges).

³ *See, e.g.*, discussion *infra* Part V.A (discussing how the AMEX brought a declaratory judgment action against Mopex to invalidate a patent owned by Mopex; Mopex attempted to use this patent to enjoin the AMEX from facilitating trading in certain financial products); discussion *infra* Part V.C (discussing how the New York Mercantile Exchange (“NYMEX”) incorporated a document published more than forty years earlier into its defense strategy in an attempt to invalidate a patent that was being used against it in an infringement suit).

⁴ *See, e.g.*, discussion *infra* Part V.B-C (providing a more detailed discussion about the settlement agreements reached between the financial firm eSpeed and several financial exchanges in the U.S. and abroad).

[¶2] It is a very recent development in U.S. history that many of these financial and software patents could have even been awarded in the first place.⁵ Once awarded, however, these types of patents possess the same scope as all other patents; they give inventors “exclusive rights” over their inventions by preventing all third parties from “making, using, offering for sale, or selling” anything covered by the patent’s claims.⁶ As a result, patent holders do have the power to take on colossal institutions such as the financial exchanges, along with any other third parties, in an attempt to enjoin them from offering certain financial instruments to the public or using certain trading technologies.⁷ Furthermore, whenever financial exchanges have to pay fees such as royalties or licensing fees to patent holders, the costs are often passed on to the public at large.

[¶3] Remarkably, the act of wielding patents and other intellectual property rights in an attempt to curtail forms of activity on financial exchanges to extract a payout is not new in U.S. history. In 1877, Ruben Jennings received a U.S. patent for inventing a trading pit.⁸ His patent claimed: “The pit shall provide sufficient standing room where persons may stand and trade with any other person on any other part of the platforms. It

⁵ *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), is regarded as the decision which embodied the turning point in U.S. patent law regarding the patentability of financial inventions. The decision swept aside the judicially created doctrine that inventions dealing with methods of doing business were statutorily unpatentable. Since then, many financial inventions that previously would have been held to be unpatentable have been patented.

⁶ 35 U.S.C. § 154 (1994). Section 154 provides for the granting of exclusive rights to inventors through patents. It states in relevant part:

CONTENTS: Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, of the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States, and, if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States, or importing into the United States, products made by that process, referring to the specification for the particulars thereof.

⁷ See, e.g., discussion *infra* Part V.A-C.

⁸ See *FIA Law & Compliance Division Presents: Patent Pending* (Oct. 26, 2004), FIA LAW AND COMPLIANCE DIVISION, at <http://www.futuresindustry.org/downloads/conferences/expo/patentpending.doc> [hereinafter *FIA Law*]; Walt Lukken, *Patent Pending: The Role of the CFTC in Intellectual Property Disputes*, CFTC (Oct. 26, 2004), at <http://www.cftc.gov/opa/speeches04/opalukken-10.htm>.

has great acoustic advantages over a flat floor.”⁹ Armed with this patent, Jennings then sought licensing fees from the Chicago financial exchanges that were already using trading pits such as the Chicago Board of Trade (“CBOT”).¹⁰ The exchanges responded by attempting to have Jennings’ patent invalidated, ultimately succeeding at that task.¹¹

[¶4] More than a century later, legal battles are still being fought today over the same issues.¹² However, the stakes in the outcomes of certain modern-day patent infringement battles have become far greater. To illustrate, in 2004, the U.S. Department of Treasury took the “extraordinary” step of filing a Statement of Interest with a Delaware district court.¹³ An early outcome in favor of the plaintiff in that case could have affected the U.S. Government’s borrowing costs and the entire national debt.¹⁴ As a further illustration, the company that provides the computer software that facilitates the majority of trading on four of the largest futures exchanges in the world has openly expressed its willingness to permanently forfeit the right to be an aggressor in any patent infringement suit against the exchanges in return for a payment of 2.5 cents *on every single options and futures trade* that each of these exchanges facilitate.¹⁵

⁹ Lukken, *supra* note 8.

¹⁰ *See id.*

¹¹ *See id.*; *See also* Jeremy Grant, *History Repeats Itself at Chicago Exchanges*, THE FINANCIAL EXPRESS, Nov. 7, 2004, available at http://www.financialexpress-bd.com/index3.asp?cnd=11/7/2004§ion_id=16&newsid=3402&spcl=yes (noting that the Jennings patent was deemed to be too vague and was therefore invalidated).

¹² *See* discussion *infra* Part V.A-E (discussing the major patent infringement suits that have been launched against the exchanges); *See also* discussion *infra* Part V.F (noting that in 2005, the CBOT was once again embroiled in a potential patent controversy).

¹³ *See* eSpeed, Inc. v. BrokerTec USA, L.L.C., No. 03-612-KAJ, 2004 U.S. Dist. LEXIS 385, at *8 (D. Del. Jan. 14, 2004).

¹⁴ *See, e.g.*, discussion *infra* Part V.D. (providing a more detailed analysis of the U.S. Treasury Department’s concerns relating to the outcome of a suit originally brought by the financial firm eSpeed against BrokerTec, its leading rival, in 2002; the Treasury Department realized that an eSpeed victory might have led to a less efficient market for trading in government securities).

¹⁵ *See TT’s Open Letter to the Futures Industry*, (Dec. 14, 2004), at <http://www.tradingtechnologies.com/news/documents/TTsOpenLetter12.14.04.pdf> [hereinafter TT Open Letter]; discussion *infra* Part V.F (explaining that the financial firm TT published an open letter to the futures industry containing this proposal).

[¶5] Surprisingly, the financial exchanges and related third parties (hereinafter “the exchanges”) have refused to challenge the validity of the patents that were eventually wielded against them in these infringement suits, until the time that they were actually sued for infringement. As a result, the exchanges have incurred millions of dollars litigating some of these suits in federal court, and the outcomes were not always favorable to them.¹⁶ This Note first reviews the major patent infringement suits against the exchanges, and then examines the primary reasons why they have felt virtually powerless to invalidate questionable patents in a preemptive manner thus far.

[¶6] Next, this Note explores a landmark proposal to reform the U.S. patent system. In 2005, the 109th Congress reviewed legislation to create an improved system of patent examination outside of federal court that would empower third parties to more effectively challenge the validity of patents after they have been issued by the PTO – i.e. a new patent “post-grant” review system.¹⁷ This Note examines the potential efficacy of

TT stated that if each of the four major futures exchanges in the U.S. had been participating in its proposed ‘2.5 cent solution’, it would have received \$130 million (5.2 billion sides x 2.5 cents) in the 12 month period prior to the publication of the open letter. *See* TT Open Letter, *supra*, at 4.

¹⁶ *See, e.g.*, discussion *infra* Part V.A-C (explaining that three of the largest U.S. commodities exchanges and one foreign exchange settled with the owner of a questionable patent in a series of related infringement suits).

¹⁷ The PTO originally included a proposal for this system - a new post-grant review system - in its 21st Century Strategic Plan. *See* UNITED STATES PATENT AND TRADEMARK OFFICE, *Post-Grant Review of Patent Claims* (Nov. 11, 2003), at <http://www.uspto.gov/web/offices/com/strat21/action/sr2.htm> [hereinafter PTO Proposal].

The Patent Quality Assistance Act of 2004, H.R. 5299, 108th Cong. (2004) contained the PTO’s proposal for a new patent post-grant review system. However, this bill was not approved by the House of Representatives. *See* CONLEY ROSE: *New USPTO Post-Grant Patent Opposition Legislation on Horizon May Drastically Reduce Patent Litigation Costs*, at <http://www.point-of-law.com/report.asp?id=467> (last visited Sept. 1, 2005) [hereinafter CONLEY ROSE].

A substantially similar bill known as the Patent Reform Act of 2005, H.R. 2795, 109th Cong. (2005), was introduced in the U.S. House of Representative on June 8, 2005. *See id.*; Dennis Crouch, *Patent Reform: Patent Act of 2005* (June 9, 2005), at http://patentlaw.typepad.com/patent/2005/06/patent_reform_p.html. Lamar Smith, the U.S. Congressman who introduced the bill, called it the “the most comprehensive change to U.S. patent law” in more than 50 years. Press Release, Congressman Lamar Smith, Smith Introduces Patent Reform Bill (June 8, 2005), at <http://lamarsmith.house.gov/News.asp?FormMode=Detail&ID=648>.

such a system - if enacted this year or at any time in the future - by demonstrating retrospectively how it would have provided the exchanges with a viable and far more economic forum in which they could have attempted to preemptively invalidate the patents that were eventually used against them in infringement suits.¹⁸

[¶7] However, this Note further contends that in actual practice as opposed to theory, the creation of a new post-grant review system will represent, at most, only a first step in a series of steps that should be taken to optimally reform the current patent system. While the proposed system could lead to the invalidation of numerous patents *after* they have been issued by the PTO, such a system would not provide a check on the validity of patents *before* they are issued.¹⁹ Essentially, members of the public will still have to spend millions of dollars litigating the validity of patents to correct mistakes made by the PTO in issuing invalid patents.²⁰

Some industry analysts have questioned whether overarching proposals that would reform the U.S. patent system will be effectuated in the immediate future. *See, e.g.*, Susan Kuchinkas, *No Obvious Solutions for IT Patent Reform*, INTERNET NEWS (Apr. 16, 2004), at http://internetnews.com/business/article.php/10791_3341821_2 (commenting that the pace of change in the U.S. patent system has been “glacial”).

¹⁸ *See, e.g.*, discussion *infra* Part VII.A-C.

¹⁹ Almost half of the patents that are litigated in federal court get invalidated. *See* Ruth Walker, *Whose idea is it, anyway?*, CHRISTIAN SCIENCE MONITOR, Jan. 17, 2001, at 11, *available at* <http://www.csmonitor.com/2002/0117/p11s01-stgn.html>.

²⁰ Patent litigation is among the most expensive forms of litigation in the U.S. today. *See* Simson L. Garfinkel, *Patently Absurd*, WIRED, July 1994, *available at* <http://www.wired.com/wired/archive/2.07/patents.html>.

According to a survey by the American Intellectual Property Law Association (“AIPLA”), the average cost of litigating small patent infringement suits involving between \$1 million and \$10 million in damages is about \$748,000. *See* Dee Gill, *Defending Your Rights: Protecting Intellectual Property is Expensive--and Often Crucial*, WALL ST. J., Sep. 25, 2000, *available at* <http://www.startupjournal.com/howto/ip/200012191000-gill.html>.

Many small individuals and organizations facing million-dollar legal demands often settle and agree to pay licensing fees instead of incurring the costs of litigation in federal court. *See* ELECTRONIC FRONTIER FOUNDATION, *Patent Busting Project*, at <http://www.eff.org/patent/wp.php> (last visited Sep. 7, 2005). Numerous companies have effectively put themselves out of business paying patent litigation fees, even on occasions when the patents at the epicenter of the litigation battles have turned out to be invalid. *See, e.g.*, Garfinkel, *supra*.

Moreover, well-capitalized parties frequently endure patent lawsuits costing millions of dollars in legal fees. *See* Merriann M. Panarella, *Stemming the Patent Litigation Tide*, MEDICAL DEVICE & DIAGNOSTIC INDUSTRY, Mar. 2004, at 80, *available at* <http://hale.admin.hubbardone.com/>

[¶8] This Note contends that a potential solution may be found in other intellectual disciplines that have embraced a far greater degree of “openness.” For

files/tbl_s47Details%5CFileUpload265%5C1945%5CMMDI_Panarella.pdf; Tomima Edmark, *Rest Insured*, ENTREPRENEUR, Nov. 1997, available at <http://www.entrepreneur.com/article/0,4621,227793,00.html> (noting that parties in major patent litigation suits routinely incur millions of dollars in legal fees whether they win or lose); FED. TRADE COMM’N., TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 6 (Oct. 2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf> [hereinafter FTC Report] (quoting a biotech representative who complained that “there are these bad patents that sit out there and you can’t touch them” - because of the prohibitive costs of bringing patent litigation in federal court); *Id.* at 8 (noting that patent litigation cases in certain fields can cost between five and seven million dollars and can take years to litigate).

As a dramatic illustration of the foregoing, on March 3, 2006, Research in Motion Ltd. (“RIM”), the company that makes the widely popular BlackBerry wireless email message system, agreed to pay NTP Inc. (“NTP”) \$612.5 million to settle the most controversial patent infringement suit in modern U.S. history. See Robb Kelley, *BlackBerry maker, NTP ink \$612 million settlement*, CNNMONEY.COM, (Mar. 3, 2006), at http://money.cnn.com/2006/03/03/technology/rimm_ntp/. To summarize the events that unfolded: On November 13, 2001, NTP filed a patent infringement suit against RIM, alleging that RIM’s BlackBerry wireless email devices and services infringed upon several dozen claims in its patents. Approximately one year later, on November 21, 2002, a federal jury ruled in favor of NTP and ordered RIM to pay NTP \$23.1 million. RIM appealed portions of the ruling in federal court and later sought Supreme Court review. See Stephanie Stoughton, *BlackBerry screens won’t go dark just yet*, USATODAY.COM, (Feb. 24, 2006), at http://www.usatoday.com/tech/products/2006-02-24-blackberry-battle_x.htm?csp=34.

In 2003 and 2004 alone, the litigation costs in this suit totaled \$93.8 million. See Tushar Gupta, et al., *Research in Motion* (February 25, 2005), at <http://faculty.fuqua.duke.edu/courses/mba/2005-2006/term3/finance458/final%20projects/Final%20Project%20RIM.doc>. In the first quarter of 2005, RIM incurred an additional \$4.5 million in legal costs. See Arik Hesseldahl, *New RIM Evidence May Bolster Defense*, FORBES.COM, (Jun. 30, 2005), at http://www.forbes.com/technology/2005/06/30/blackberry-rim-ntp-cx_ah_0630rim.html.

While RIM and NTP were battling in federal court, the PTO entered the fray. In January 2003, the PTO decided to reexamine eight of NTP’s patents related to wireless email devices to determine whether they were valid and should have been issued in the first place. See Joseph Rosenbloom, *BlackBerry Blues* (Sep. 15, 2005), at <http://www.law.com/servlet/jsp/article.jsp?id=1126688711482>. The PTO examination resulted in an initial invalidation of five patents and a final rejection of one. See Stoughton, *supra*. Future PTO examinations and appeals by NTP of any unfavorable rulings may take up to ten years to complete. See Declan McCullagh, *Judge to RIM: We’re not delaying this any longer*, CNET NEWS.COM (November 30, 2005), at http://news.com.com/Judge+to+RIM+Were+not+delaying+this+any+longer/2100-1041_3-5976776.html; Rosenbloom, *supra*.

On November 30, 2005, the federal court in the RIM/NTP suit stated that it would not wait for the remainder of the PTO’s reexamination of NTP’s patents or any of NTP’s potential appeals to reach finality before ordering a permanent injunction against BlackBerry (even though judges in patent infringement suits have sometimes withheld drastic actions until rulings on the validity of questionable patents were finally decided) See McCullagh, *supra*; Steven Levy, *BlackBerry Deal: Patently Absurd*, NEWSWEEK.COM, (Mar. 13, 2006), at <http://www.msnbc.msn.com/id/11677343/site/newsweek/>. Thus, to avert a court-ordered shut down of its BlackBerry service, RIM decided to settle with NTP on March 3, 2006.

In speaking about the settlement agreement just several hours after it was reached, RIM’s co-CEO Jim Balsillie bemoaned the fact that his company felt compelled to settle the suit, particularly in light of the fact that he believed that *all* of NTP’s patents would eventually be invalidated. See Levy, *supra*. Consistent with Mr. Balsillie’s statements, many patent analysts have questioned the overall efficacy of a patent regime in which the targets of patent infringement suits often feel compelled to make large payments, often

example, the “Open Source” movement in fields such as computer science represents a paradigmatic example of the manner in which the public at large can be called upon to solve problems that are largely unsolvable within closed systems.²¹ This Note therefore argues that the time has come for the PTO and Congress to embrace this spirit of openness by offering the public incentives to find ways to strike down certain categories of patents not only in the patent post-grant phase, *but also in the time period before these patents are issued as well*. Moreover, this Note suggests that a plausible method for incentivizing the public has already been developed in the private industry, and that such a method could ideally be put to use by the PTO.

[¶9] Part I of this Note reviews the historical developments in patent law regarding the patentability of financial and software inventions. Part II explains why most financial and software inventions were not considered to be patentable by the U.S. judicial system and the PTO until very recently. Part III explores certain structural changes in the U.S. judicial system relating to the patent appeals process along with the leading case in 1998 that led to the revolution in patent law regarding the patentability of financial and software inventions. Part IV examines some of the overall changes that have taken place in the financial industry since 1998, when most financial and software inventions were finally accepted to be patentable. Part V reviews major recent legal battles in modern patent law featuring the global financial exchanges. Part VI examines the ideologies behind the proposed post-grant review system, and it further analyzes how the system, if enacted, will alter the course of patent infringement suits against the

amounting to tens or hundreds of millions of dollars, to settle suits based upon patents that may turn out to be invalid or should have never been granted in the first place. *See, e.g., id.*

²¹ *See, e.g.,* discussion *infra* Part VII.A (describing the success of the “openness” approach in fields such as computer science and even cryptography).

exchanges in the future. It also explains why many potential or actual targets of patent infringement suits may nonetheless refrain from utilizing the new system. Finally, Part VII propounds a novel solution to certain problems with the U.S. patent system that will likely persist even if a new patent post-grant system is enacted, by drawing upon the “Open Source” paradigm that has succeeded in other intellectual disciplines. This solution focuses on incentivizing the public to assist the PTO in conducting research that can invalidate certain categories of patents before they are issued.

I. A BRIEF HISTORY OF FINANCIAL PATENTS IN THE U.S.

¶10 The merits of patent systems have been debated for thousands of years.²²

The U.S. Constitution empowers the Congress "[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."²³ This is the only clause in the U.S. Constitution that addresses the subject of exclusive rights. The entire U.S. patent system, a system that grants inventors a limited monopoly for a twenty year period on the “making, using, offering for sale, or selling”²⁴ of their novel and non-obvious inventions, has developed over time as a means for implementing this Constitutional clause.²⁵

¶11 On April 10, 1790, shortly after the Constitution was ratified, George Washington signed into law a Congressional statute which effectively created the U.S. patent system.²⁶ Almost nine years later, on March 19, 1799, the U.S. Patent Office granted the first financial patent in this country’s history to Jacob Perkins for an invention

²² The earliest extant written documentation that describes a societal system that granted exclusive rights as an incentive to invent comes from ancient Greece. *See* DONALD S. CHISUM, ET. AL., *PRINCIPLES OF PATENT LAW* 7 (3rd ed. 2004). For centuries, Greek philosophers, including Aristotle, widely debated the merits of exclusive rights, but Greek society as a whole ultimately rejected the concept. *See id.* at 7. Ancient Rome banned monopolies as well. *See id.* at 9 (noting that the Roman Emperor Zeno (c. 480 A.D.) stated: “No one shall exercise a monopoly over any . . . material, whether by his own authority or under that of an imperial rescript heretofore or hereafter promulgated.”). The modern patent system was originally developed in Italy. During the Italian Renaissance, Italian city-states such as Florence and Venice realized that they could entice skilled craftsmen to move to their areas by granting them limited monopolies on the practice of their crafts within their confines. *See* Paul E. Schaafsma, *A Gathering Storm in the Financial Industry*, 9 *STAN. J.L. BUS. & FIN.* 176, 178 (2004). In 1432, Venice passed a law granting exclusivity to the inventor of a machine or process that further provided for the destruction of any infringing devices and the payment of a fee to the original inventor. *Id.* at 179. The Italian city-states discovered that these limited monopoly grants served as a powerful inducement to foster further innovative activity. Over centuries, patent grants became such a boon to inventors that Adam Smith even proposed granting patent-type rights to explorers who discovered new trade routes in his classic work *Wealth of Nations*. *See id.* (citing ADAM SMITH, *AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS*, 712 (Edwin Cannan ed., Modern Library 1937) (1776)).

²³ U.S. CONST. art. I § 8, cl. 18.

²⁴ *See* Section 154 *supra* note 6 and accompanying text.

²⁵ *See* CHISUM, *supra* note 22, at 18.

²⁶ *See* Peter R. Lando, *Business Method Patents: Update Post State Street*, 9 *TEX. INTELL. PROP. L.J.* 403, 407 (2001).

to detect counterfeit notes.²⁷ In the first fifty years after the creation of the U.S. patent system, the Patent Office granted a total of forty-one financial patents.²⁸ The vast majority of these financial patents related to paper-based inventions such as bank notes, checks, and lotteries.²⁹

[¶12] The first time that a patent was granted on what is now known as a financial “business method” invention came almost 100 years after the U.S. patent system was created. On January 8, 1889, an inventor named Herman Hollerith received three patents on several different methods and apparatuses covering the tabulation and compilation of statistical information and business data.³⁰ In the more than 100 years following the granting of the Hollerith patents, no more than 33 financial patents were granted per year.³¹ One of the noteworthy financial business method patents granted in that time period was awarded to Merrill Lynch for a data processing system known as a “Cash Management Account” which claimed a synergistic combination of several popular financial products.³²

²⁷ See *id.* Jacob Perkins was awarded a U.S. patent for his invention: “Detecting Counterfeit Notes.”

²⁸ See *id.*

²⁹ See *id.*

³⁰ See *id.* at 407-08. Hollerith was granted U.S. Patent Numbers 395,781, 395,782, and 395,783 for the invention of ‘punch cards’ for data storage along with methods for processing the data on these cards. Hollerith’s business thrived under the protection afforded by his patents. Hollerith’s patents ushered in a new era in U.S. patent history concerning the patentability of financial business method patents. His punch cards were widely used up until the advent of the modern computer era. See *id.* In 1924, Thomas J. Watson, Sr. changed the name of his company to the now famous Internal Business Machine Corporation (“IBM”).
Id.

³¹ Josh Lerner, *The Two-Edged Sword: The Competitive Implications of Financial Patents*, at <http://www.frbatlanta.org/news/conferen/fm2003/lerner.doc> [hereinafter Lerner, *Two-Edged Sword*]. Mr. Lerner’s survey of the 605 financial patents awarded from January 1971 to December 2000 has been recognized in the financial literature as the most exhaustive survey of financial patents completed to date. Issued financial patents and current financial patent applications can be viewed on these websites: <http://www.uspto.gov/index.html>, <http://www.delphion.com>, and <http://www.patents.ibm.com>

³² Douglas L. Price, *Assessing the Patentability of Financial Services and Products*, 3 J. HIGH TECH. L. 141, 143 (2004). Merrill Lynch received U.S. Patent No. 4,346,442 for its “Cash Management Account” invention. The patent on this invention claimed a process that is commonly known in the industry as a “cash sweep” – a way for investors to automatically invest idle funds in and out of money market funds. It

[¶13] Thus, for most of the 20th century, many different types of financial inventions were often considered to be entirely unpatentable under the prevailing judicially-created subject matter guidelines. However, from 1997 until 2000, the number of financial patents awarded began to rise exponentially. For example, 33 financial patents were awarded in 1997, 88 in 1998, 145 in 1999, and 202 in 2000, a six-fold increase in four years.³³ This phenomenon raises the following question: Is it possible that the increase in the number of issued financial patents can be attributed to a chain of serendipitous occurrences, or was this a paradigm shift attributable to certain changes in patent law?

II. WHY WEREN'T FINANCIAL INVENTIONS PATENTABLE UNTIL RECENTLY?

[¶14] To be patentable, an invention must belong to a class of permissible subject matter specified by Congress in 35 USC §101 and further explicated by the judicial system in the cases and controversies that have arisen under this statute.³⁴ Financial

was comprised of three popular components: (i) A securities account to facilitate securities transactions, (ii) a money market account, and (iii) a Visa charge/checking account. *See id.*

³³ *See* Lerner, *Two-Edged Sword*, *supra* note 31, at 20.

³⁴ 35 U.S.C. § 101 (1952) (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”).

Pursuant to § 101, an invention must belong to any one of following four categories to be patentable: (i) Processes, (ii) Machines, (iii) Manufactures, or (iv) Compositions of matter.

In 1980, the Supreme Court in *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980), reviewed the Congressional Reports that accompanied the 1952 Patent Act and determined that §101 broadly encompassed “anything under the sun that is made by man.” Nevertheless, prior to the Federal Circuit’s 1998 ruling in *State St. Bank & Trust Co.*, 149 F.3d 1368 (Fed. Cir. 1998), many financial inventions were judicially excluded from the scope of § 101.

In addition to satisfying the subject matter requirement of § 101, an invention must satisfy other criteria to merit patent protection. It must be:

- (i) “useful” under 35 U.S.C. § 101
- (ii) “novel” under 35 U.S.C. § 102, and
- (iii) “nonobvious” to ordinarily skilled artisans in the field of the invention under 35 U.S.C. § 103.

Moreover, pursuant to 35 U.S.C. § 112, the patent application itself must contain fully enabling disclosure of the invention. *See, e.g.*, *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir.

patents were largely held to be unpatentable for most of this country's history as a result of two major judicially created exceptions to §101: the "business method" exception, and the "mathematical algorithm" exception.

A. The Business Method Exception

¶15 Until 1998, courts frequently categorized financial inventions as inventions on a particular way of doing business ("business methods").³⁵ Courts held that business methods failed to satisfy the statutory requirement under § 101 that a patentable invention must constitute a "process, machine, manufacture, or composition of matter."³⁶ In 1908, the Second Circuit in *Hotel Security Checking Co. v. Lorraine Co.*, promulgated what came to be known as the business method exception to patentability under §101.³⁷ In that case, the Court struck down a patent on a method of handling restaurant order slips which was designed to prevent fraud by waiters and cashiers.³⁸ The patent at issue claimed an abstract method for handling order slips, but failed to include a physical embodiment of the method. The Court first considered the specific language of the U.S. Constitution and patent statutes which empower Congress to reward the development of "useful arts."³⁹ It then invalidated the patent, holding that: "[a] system of transacting business disconnected from the means for carrying out the system is not, within the most liberal interpretation of

1991) (explaining that § 112 mandates that a valid patent must provide the public with "fair notice of what the patentee and the Patent and Trademark Office have agreed constitute the metes and bounds of the claimed invention"). Under § 112, a valid patent must also contain the patentee's contemplated best mode of reducing the invention to practice. *See* CHISUM, *supra* note 22, at 155-56, 188, 324, 532, 735.

³⁵ *See, e.g.*, Sharon Barner & Greg Norrod, *Contending With Patents in Financial Services*, NAT'L L.J. (Jan. 24, 2005), available at http://www.foley.com/files/tbl_s31Publications/FileUpload137/2547/BarnerNorrod.pdf.

³⁶ *See id.*

³⁷ 160 F.467 (2d Cir. 1908).

³⁸ *See id.*

³⁹ *Id.* at 469.

the term, an art.”⁴⁰ Before and after *Hotel Security*, courts and the PTO required that business method patent applications had to claim both an abstract method and a physical “means for carrying out” that method in order to be patentable.⁴¹

[¶16] The business method exception to patentability persisted throughout most of the twentieth century, even though the Supreme Court greatly enlarged the scope of patentable subject matter under §101. For example, in *Diamond v. Chakrabarty*, the Supreme Court considered a case involving the patentability of a genetically-engineered life form (a microorganism) capable of breaking down two components of crude oil.⁴² The Court turned to the writings of Thomas Jefferson, and examined the theoretical framework underlying his authorship of the Patent Act of 1793, that “ingenuity should receive a liberal encouragement.”⁴³ The Supreme Court further examined the Congressional Committee Reports accompanying the 1952 Patent Act in determining that Congress intended §101 to include “anything under the sun that is made by man.”⁴⁴ However, even after *Chakrabarty*, while many of the business methods that inventors sought to patent were certainly “processes” that were “made by man,” the business method exception to §101 still persisted.

⁴⁰ *Id.* (citing *Fowler v. New York*, 121 F. 747, 748 (2d Cir. 1903) (“No mere abstraction, no idea, however brilliant, can be the subject of a patent irrespective of the means designed to give it effect.”)).

⁴¹ *See Price*, *supra* note 32, at 142. The business method exception was repeatedly invoked by the judiciary in the twentieth century to invalidate business method patents. For example, in *Park-In Theatres v. Loew’s Drivein Theatres*, 338 U.S. 896 (1949), a contested patent on a method of parking cars at drive-in movie theaters to optimize the viewers’ collective abilities to see the movie screen was held to be statutorily invalid under §101 due to the absence of a physical embodiment of that method: “...the open-air drive-in system for conducting the motion picture theatre business, however novel, useful, or commercially successful is not patentable apart from the means for making the system practically useful, or carrying it out.” *Id.* at 552.

⁴² 447 U.S. 303 (1980).

⁴³ *Id.* at 308-09 (citing 5 Writings of Thomas Jefferson, 75-76 (Washington ed. 1871)).

⁴⁴ *Id.* at 309 (citing US. REP. NO. 82-1979, at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952)).

B. The Mathematical Algorithm Exception

[¶17] The second obstacle to the patentability of financial inventions was the consideration that financial inventions often recite a series of steps (an algorithm) which involves the modification or processing of numbers. Mathematical algorithms, without any specific relation to a piece of physical hardware, were also held to be statutorily unpatentable under §101.⁴⁵ For example, in 1948, the Supreme Court in *Funk Bros. Seed Co. v. Kalo Inoculant Co.* elucidated that mathematical theorems or formulas such as Einstein's $e=mc^2$, or Newton's law of gravity, are unpatentable because they are "manifestations of . . . nature, free to all men and reserved exclusively to none."⁴⁶ Twenty-four years later, in 1972, the Supreme Court in *Gottschalk v. Benson* invalidated a patent which was essentially an algorithm to convert one number format into another using a device such as a computer.⁴⁷ The Court held that it could not sustain this type of patent because doing so, absent a directive from Congress, would have had the practical effect of granting a patent on the underlying algorithm itself.⁴⁸ Similarly, in *Parker v. Flook*, the Supreme Court concluded that while the inclusion of a mathematical algorithm in a patent's claims does not necessarily invalidate that patent, the the claims must also

⁴⁵ See *infra* text accompanying notes 46-52 (providing an overview of the Supreme Court's major holdings on the patentability of mathematical algorithms until 1981).

⁴⁶ 333 U.S. 127, 130 (1948).

⁴⁷ 409 U.S. 63 (1972). The algorithm at issue recited steps for converting binary-coded decimal numbers into binary numbers.

⁴⁸ See *id.* at 71-72 ("The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself. It may be that the patent laws should be extended to cover these programs, a policy matter to which we are not competent to speak.").

contain a novel and useful physical structure that can be constructed with the aid of that algorithm to be upheld.⁴⁹

[¶18] Then, in 1981, the Supreme Court issued a ruling in *Diamond v. Diehr* that enlarged the scope of the patentability of mathematical algorithms in much the same manner that the *Chakrabarty* ruling expanded the scope of patentable subject matter classes.⁵⁰ In *Diehr*, the Court held that a process for curing rubber which combined both a mathematical formula and a programmed digital computer with well-known hardware was patentable.⁵¹ Specifically, the Court noted that even though the patent contained a mathematical equation that was not patentable “in isolation,” a process incorporating that equation to achieve a more efficient means for curing rubber could be patented.⁵² In a broader sense, the Court proclaimed here that any mathematical algorithm could be patented if it could be reduced to a useful practical application – i.e. if it could produce any “useful, concrete, and tangible result.”⁵³

[¶19] Finally, in 1998, a U.S. federal court, in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, handed down a decision whose scope was so cataclysmic that it eviscerated the business method exception once and for all.⁵⁴ The *State Street* decision will be examined in the following section.

⁴⁹ 437 U.S. 584 (1978) (dealing with the patentability of an alarm system relating to a catalytic converter process).

⁵⁰ 450 U.S. 175 (1981).

⁵¹ *See id.* The mathematical formula involved in this case is known as the Arrhenius equation. The patent did not attempt to “preempt” the use of the Arrhenius equation itself so that no one else could use the equation in the future without a license from the inventors. Instead, the inventors attempted to prevent others from using the equation in the specific way described in the patent. The Court recognized this and broadly held that “. . . an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.” *Id.* at 187-88.

⁵² *Id.* at 188.

III. THE *STATE STREET* DECISION AND A GLIMPSE INTO THE FEDERAL CIRCUIT COURT OF APPEALS THAT HANDED IT DOWN

A. The Founding of the Federal Circuit Court of Appeals

[¶20] The ruling which changed the law of the land on the patentability of business methods was not delivered by the Supreme Court, but instead by the Federal Circuit Court of Appeals (the “Federal Circuit”).⁵⁵

[¶21] The Federal Circuit was created in 1982 as a result of the Federal Courts Improvement Act of 1982 (“the 1982 Act”).⁵⁶ Prior to that time, all patent appeal cases were brought in the appellate courts of the different circuits; however, these circuits often differed in their interpretations of patent law.⁵⁷ As a result, patent lawyers engaged in widespread “forum shopping” in the process of deciding where to bring their appeals.⁵⁸ The 1982 Act created a single federal court with the exclusive jurisdiction to hear all patent cases on appeal. Unlike other appellate courts judges, many Federal Circuit judges had prior experience as patent attorneys. The primary purpose behind the creation of the

⁵³ *State St. Bank & Trust Co.*, 149 F.3d 1368 (1998) (citing *Diamond v. Diehr*, 450 U.S. 175 (1981), and *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)).

⁵⁴ 149 F.3d at 1375.

⁵⁵ The Supreme Court rejected a *certiorari* petition to review the decision in January 1999. *State St. Bank & Trust Co. v. Signature Fin. Group Inc.*, 525 U.S. 1093 (1999).

⁵⁶ Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982).

⁵⁷ See Lerner, *Two-Edged Sword*, *supra* note 31, at 2.

⁵⁸ See *id.* at 2-3. Lerner provided a telling illustration of the manner in which the public exploited discrepancies between “patent-friendly” districts and “skeptical” districts:

Patent applicants would crowd the hallway in the office where the list of awards was distributed at noon on each Tuesday. Upon discovering that their patent had issued, they would rush to the pay phones to instruct their lawyers to file a patent-infringement lawsuit against competitors in a patent-friendly district court. Meanwhile, representatives of firms who might infringe the issued patent would race to the phones as well. They would order their lawyers to file a lawsuit seeking to have the new patent declared invalid in a ‘skeptical’ district. Often the fate of the case—and many million dollars in damages—would hinge on which lawyer got his suit time-stamped first. (Judges would often combine such dueling lawsuits into a single action, heard in the district court where the initial action was filed.

Id. at 2-3.

Federal Circuit was to assure constituents that they would receive more uniformity and predictability in patent law rulings than in the past.⁵⁹ In addition, patent cases on appeal from the Federal Circuit could still reach the Supreme Court.⁶⁰

[¶22] Since its inception, the Federal Circuit has aggressively acted to boost the rights of patent holders⁶¹ The Federal Circuit has also continued to follow the broadening approach to patentability under §101 that was embarked upon by the Supreme Court in *Chakrabarty* and *Diehr*.⁶² For example, in rulings between 1989 and the mid-1990s, the Federal Circuit largely did away with the long-held judicial axiom that computer software was unpatentable under the mathematical algorithm exception to §101.⁶³ Thus, when the Federal Circuit heard *State Street* in 1998, conditions were ripe for the paradigm shift that was about to occur.

B. The *State Street* Decision: How the Name of a Bank Became Synonymous With a Revolution in Patent law

[¶23] *State Street* and Signature Financial Services (“Signature”) were both companies which managed mutual funds. Signature had previously received U.S. Patent No. 5,193,056 (the “056 patent”) for its “Data Processing System for Hub and Spoke Financial Services” – a method for managing mutual funds to gain certain tax

⁵⁹ See Schaafsma, *supra* note 22, at 181.

⁶⁰ See FREE ADVICE, *Can I Appeal From A Federal Circuit Court Of Appeals To The United States Supreme Court?*, at http://law.freeadvice.com/litigation/appeals/appeal_federal_circuit_court.htm. For example, the Supreme Court vacated the Federal Circuit ruling in *Shoketsu Kinzoku Kogyo Kabushiki Co. v. Festo Corp.*, 520 U.S. 1111 (1997).

⁶¹ Lerner, *Two-Edged Sword*, *supra* note 31, at 3-4. The Federal Circuit, in the first eight years of its existence, affirmed 90% of the infringement rulings that it heard. By comparison, in the preceding three decades, all the different circuit courts affirmed 62% of the infringement rulings that they ruled upon.

⁶² See, e.g., *Chakrabarty*, 447 U.S. 303 (1980); *Diehr*, 450 U.S. 175 (1981), which were decided just before the Federal Circuit was created in 1982.

⁶³ See *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1066 (Fed. Cir. 1992) (“When determining whether claims disclosing computer art or any other art describe patentable subject

advantages.⁶⁴ State Street entered into negotiations with Signature to license the ‘056 patent, However, State Street and Signature failed to reach a licensing agreement. As a result, State Street brought a declaratory judgment action against Signature seeking to invalidate the ‘056 patent on the grounds that it was statutorily unpatentable under §101.⁶⁵ The stakes in the outcome for State Street were enormous because it served as custodian for about 40% of all U.S. mutual fund assets.⁶⁶ The Massachusetts District Court that originally heard the case determined on a summary judgment motion that the ‘056 patent was invalid under both the mathematical algorithm and business method exceptions to §101.⁶⁷ The Federal Circuit set aside that ruling.

[¶24] In addressing the mathematical algorithm exception, the Court invoked the criteria established in *Diehr* and subsequent cases, noting that the invention in the ‘056 patent generated a final share price which could have represented a “tangible result.”⁶⁸ Regarding the business method exception, the Court declared: “We take this opportunity to lay this ill-conceived exception to rest. Since its inception, the “business method”

matter, this court must follow the terms of the statute.”); *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (“Consequently, a computer operating pursuant to software may represent patentable subject matter...”).

⁶⁴ See *State St. Bank & Trust Co.*, 149 F.3d at 1370. The ‘056 patent allowed different mutual funds to “pool” their investments into a single portfolio so that the funds could gain the tax advantages of a partnership under federal income tax law.

⁶⁵ See *id.*

⁶⁶ See Lerner, *Two-Edged Sword*, *supra* note 31, at 13. It was also estimated that State Street derived revenues of more than \$3 billion for its services.

⁶⁷ *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 927 F. Supp. 502 (D. Mass. 1996).

At bottom, the invention is an accounting system for a certain type of financial investment vehicle . . . Quite simply, it involves no further physical transformation or reduction than inputting numbers, calculating numbers, outputting numbers, and storing numbers. The same functions could be performed, albeit less efficiently, by an accountant armed with pencil, paper, calculator, and a filing system. “The dispositive issue is whether the claim[s] as a whole recite [] sufficient physical activity to constitute patentable subject matter. The Court holds that Signature’s data processing system does not.” . . .

Id. at 515 (quoting *In re Schrader* 22 F.3d 290, 294 n.9 (Fed. Cir. 1994)).

⁶⁸ *State St. Bank & Trust Co.*, 149 F.3d at 1373. The Court explained that a final number representing a “price, profit, percentage, cost, or loss” could qualify as an acceptable “tangible result” for patentability purposes under 35 U.S.C. § 101.

exception has merely represented the application of some general, but no longer applicable legal principle”⁶⁹ The Court held that business method claims should be treated like all other claims, explaining that the patentability of business-related claims “should not turn on whether the claimed subject matter does ‘business’ instead of something else.”⁷⁰

[¶25] As of today, few foreign countries have followed the course set by the U.S. in *State Street* in granting patents on business methods. Countries such Australia, Israel, Japan and Singapore have recognized business method patents, but mostly in a narrower sense than the U.S.⁷¹ For example, in Japan, business methods are statutorily patentable if they can be carried out or implemented using a computer.⁷² Countries in Europe that recognize business method patents require them to have some technical character⁷³ or content⁷⁴ to be statutorily patentable.

IV. THE EFFECT OF THE *STATE STREET* RULING ON THE FINANCIAL INDUSTRY

[¶26] While *State Street* has been highlighted by many legal analysts as being the pivotal case which determinatively established the patentability of computer software, the

⁶⁹ *Id.* at 1375.

⁷⁰ *Id.* at 1377.

⁷¹ WIKIPEDIA, *Business method patent*, at http://en.wikipedia.org/wiki/Business_method_patent (last visited Mar. 12, 2006).

⁷² See Josh Lerner, *Where Does State Street Lead? A First Look at Finance Patents, 1971 to 2000*, 57 J. FIN. 901 (2002); Hideo Furutani, Patentability of Business Method Inventions in Japan Compared with the U.S. and Europe 11-12 (2003), available at http://www.furutani.co.jp/office/ronbun/Business_method_patents_in_Japan.pdf; Isis E. Caulder, Software and Business Method Patents - The Latest Developments, Address at the Canadian IT Law Association Annual Conference 3 (2003), available at <http://www.bereskinparr.com/English/publications/pdf/Software-BMPatents.pdf> (explaining that in Japan, software-related business methods are patentable if the information processed by the software is “concretely realized” by one or more physical devices such as hardware resources).

⁷³ See Furutani, *supra* note 722, at 12 (explaining that in European countries, statutorily patentable business must use computers or computer programs *and* must exhibit further technical effects or contributions).

⁷⁴ See Caulder, *supra* note 722, at 29.

case at its core actually concerned the patentability of financial inventions. After *State Street*, financial firms “awoke” to find that many of their fundamental financial products were now subject to the patent system.⁷⁵

[¶27] Financial firms grasped the import of the *State Street* ruling almost immediately. They realized that they could no longer attack the legitimacy of their competitors’ patents on business method grounds.⁷⁶ Furthermore, they feared that their internal proprietary business methods could now be patented by their competitors.⁷⁷ As a result, many financial firms deluged the PTO with applications for business method patents to protect their individual financial inventions.⁷⁸ Q. Todd Dickinson, the Deputy Commissioner of Patents and Trademarks, explained that while patenting may have been a foreign undertaking to many banks and other businesses: “... [T]hey will come to understand the value of patent protection.”⁷⁹ Overall, the number of method patent applications rose from 925 in 1997 (the year before *State Street*), to 7,500 in 2000,

⁷⁵ Barry D. Rein, *A New World for Money Managers; Circuit Upholds Financial Patent*, N.Y.L.J., Sept. 21, 1998, at S1. See generally Price, *supra* note 32, at 153-57. In the wake of the *State Street* decision, patent scholars noted that many financial models formerly regarded as unpatentable under the “business method” or “mathematical algorithm” exceptions now constituted patentable subject matter. For example, the Black-Scholes options pricing model, which enabled the determination of a “fair market value” for a category of options and is probably the most famous financial model ever developed, was considered to be unpatentable when it was first developed in 1973. However, the model could have been patented in some form had it been developed in the wake of *State Street*. See Peter Langley & Bob Seeman, *Patent Strategies for Financial Institutions and Internet Businesses*, Address at the International Bar Association Annual Conference 11 (Sept. 28, 1999), available at <http://www.origin.co.uk/papers/IBA.pdf>.

⁷⁶ See Price, *supra* note 32, at 153.

⁷⁷ See *id.*

⁷⁸ See *id.*; FRBATLANTA, Clifford Stanford, *Business Method Patents and Financial Services* (2003), at http://www.frbatlanta.org/filelegacydocs/erq403_stanford.pdf. After *State Street*, many financial firms conducted top-to-bottom reviews of all of their internal processes to determine which ones might be patentable.

⁷⁹ Price, *supra* note 32, at 156.

representing an increase of 700 percent.⁸⁰ In the fourth quarter of 1999 alone, there were 190 patents granted by the PTO relating to finance.⁸¹

[¶28] Nevertheless, many financial professionals still questioned the efficacy of patents in certain financial sub-areas and specialties. For example, numerous quantitative business methods do not make ideal patent candidates because they need to be continually modified to avoid becoming obsolete.⁸² Furthermore, many proprietary financial methods feature a considerable degree of human expertise and management - which can be more of a subject for trade secret protection than patent protection.⁸³ Additionally, there were concerns about the increased legal costs accompanying the changes introduced by *State Street*. Patent litigation is among the most expensive and time-consuming of all types of lawsuits to initiate and/or defend.⁸⁴ Corporations also had to pay for patent attorneys to audit their products and services and then to assess the intellectual property issues relating to them.⁸⁵ In spite of these cost concerns, many Wall Street firms such as Merrill Lynch and Citigroup actively sought to patent their financial inventions in the time period following *State Street*.⁸⁶

⁸⁰ *Id.* at 155.

⁸¹ Aaron Lucchetti, *Patent Poses Problem for Amex Exchange-Traded Funds*, WALL ST. J., Sept. 20, 2000, at C1.

⁸² See Jacob Razem, Note, *Patent Protection for New Ways to Do Business and the Effect on Financial Institutions*, 4 N.C. BANKING INST. 521, 539 n.124 (2000).

⁸³ Every state has adopted some form of trade secret protection. Trade secrets have a number of advantages and disadvantages compared to patents. Trade secrets, like patents, can be used to fully protect business methods. However, the owners of trade secrets are not required to fully disclose the subject matter to acquire intellectual property protection rights. Furthermore, trade secrets have an unlimited duration, are easier to obtain than patents, and need only be kept secret to preserve the intellectual property rights of their owners. However, unlike patents, trade secrets do not prevent third parties from “making, using, offering for sale, or selling” an invention if they discover the invention through reverse engineering or some other means. With patents, as a reward for full disclosure of the invention, the PTO grants inventors a twenty year monopoly on their inventions. See, e.g., Howard M. Eisenberg, *Patents vs. Trade Secrets*, available at http://www.yale.edu/ocr/invent_guidelines/docs/patent_vs_trade_secret.pdf (last visited Sep. 7, 2005); Razem, *supra* note 82, at 538-43.

⁸⁴ See *supra* note 20 and accompanying text.

⁸⁵ See Price, *supra* note 32, at 158.

⁸⁶ See Lucchetti, *supra* note 81, at C1.

V. PATENT HOLDERS VERSUS THE GLOBAL FINANCIAL EXCHANGES: THE MAJOR LEGAL BATTLES THAT HAVE BEEN WAGED THUS FAR

[¶29] Several prominent legal battles have recently been waged by patent holders against the financial exchanges. In each case, the patent holders sought to extract royalties and/or licensing fees on *every single trade* on the exchanges potentially covered by their patents.⁸⁷ These cases vividly demonstrate both the power and the scope of the intellectual property rights conveyed by patents. In the first example, a financial start-up named Mopex, Inc. (“Mopex”) attempted to enjoin the American Stock Exchange, the Chicago Stock Exchange, and others from facilitating trading in four financial products known as Exchange Traded Funds that are currently very popular in the U.S.⁸⁸ In the second example, eSpeed, a company originally formed by the bond trading giant Cantor Fitzgerald, attempted to enjoin some of the largest commodities exchanges in the world, along with a number of financial firms, from facilitating certain types of online futures trading.⁸⁹ Thereafter, eSpeed sued a rival firm in a separate patent infringement action that alarmed the U.S. Government, leading the U.S. Department of Treasury to become involved in the case.⁹⁰ Finally, the financial firm TradingTechnologies (“TT”) has sued eSpeed, in turn, for patent infringement.⁹¹ TT is also presently seeking a payout from the four largest futures exchanges in the world for every options and futures trade that they

⁸⁷ See, e.g., discussion *infra* Part V.A-C (discussing infringement suits brought by financial firms against U.S. and international exchanges.)

⁸⁸ See, e.g., discussion *infra* Part V.A.

⁸⁹ See, e.g., discussion *infra* Parts V.B-C.

⁹⁰ See, e.g., discussion *infra* Part V.D.

⁹¹ See, e.g., discussion *infra* Part V.E.

will execute in the future.⁹² The outcomes of these cases have been viewed as setting a course for the future of patent litigation in the financial industry.⁹³

A. Mopex Versus the American Stock Exchange

[¶30] In 1998, Kenneth Kiron and Kevin Bander, the founders of Mopex Inc. (“Mopex”), were granted U.S. Patent No. 6,088,685 (the “’685 Patent”) on a method of packaging mutual funds that would allow these funds to be traded on financial exchanges in the form of financial products known as Exchange Traded Funds (“ETFs”).⁹⁴ The American Stock Exchange (“AMEX”) had been actively facilitating the trading of ETFs since the early 1990s – years before the PTO granted Mr. Kiron and Mr. Bander the ‘685 Patent.⁹⁵ Nevertheless, in 1999, Mr. Kiron and Mr. Bander approached the AMEX, claiming that the AMEX had infringed upon the ‘685 Patent by facilitating trading in four different ETFs: (i) iShare funds, (ii) Select Sector SPDR (“Spider”) funds, (iii)

⁹² See, e.g., discussion *infra* Parts V.B-F.

⁹³ See Agnes T. Crane, *eSpeed-ICAP Patent Dispute Is Heating Up*, WALL ST. J., Sept. 2, 2003, at C15.

⁹⁴ Press Release, Am. Stock Exch., American Stock Exchange Celebrates 10 Years of the SPDR (Jan. 29, 2003), http://www.amex.com/atamex/news/press/sn_SPDR_012903.htm [hereinafter AMEX Celebrates] (“ETFs are akin to index funds that trade like a single stock. They are liquid and easy to use, and offer diversification, market tracking, low expenses and tax efficiency. ETFs offer a flexible mechanism to get needed exposure, while at the same time are more transparent and provide greater control than traditional mutual funds.”). U.S. Patent No. 6,088,685 (filed on August 27, 1998) is titled: “Open End Mutual Fund Securitization Process.” In a nutshell, this patent claimed a method that would enable mutual funds and certain ETFs to trade on financial exchanges in the same manner as stocks and options. After being awarded the ‘685 Patent, Mr. Kiron and Mr. Bander successfully raised several millions of dollars in financing for Mopex. They also hired Bruce Lehman, a former PTO commissioner, to serve on the board of directors of Mopex.

⁹⁵ See AMEX Celebrates, *supra* note 94.

streetTRACKS funds, and (iv) VIPERs funds.⁹⁶ Mr. Kiron and Mr. Bander sought to have the AMEX license their patent to forestall an infringement lawsuit.⁹⁷

[¶31] Rather than enter into any sort of licensing arrangement with Mopex, the AMEX chose to fight Mopex in court. In August 1999, the AMEX brought a declaratory judgment action against Mopex, seeking a judicial declaration that the ‘685 Patent was invalid.⁹⁸ The AMEX contended that the ‘685 Patent should have never been granted in the first place because it was not “novel” (i.e. “prior art,”⁹⁹ already existed in the public domain that described the claims in the ‘685 Patent.)¹⁰⁰ Specifically, the AMEX argued

⁹⁶ *Mopex, Inc.*, 250 F. Supp. 2d at 325. *See also* Schaafsma, *supra* note 22, at 181. Two of the Select SPDR funds named here were the “Energy Selection Section Spiders” and the “Consumer Discretionary Select Sector Spiders.” Some of the stocks comprising the Energy Selection Section Spiders include: ExxonMobil Corp, Royal Dutch Petroleum Co., and ChevronTexaco Corp. Some of the stocks comprising the Consumer Discretionary Select Sector Spiders are: Wal-Mart Stores, Walt Disney Co., and General Motors Corp. *Id.*

⁹⁷ *See* Price, *supra* note 32, at 147. In their meetings, Mr. Kiron and Mr. Bander presented ways to have the AMEX license the patent based on factors such as the volume of trading in the ETFs that could have netted them approximately \$20 million per year. *See id.* Gary Gastineau, a former AMEX official, perceived MOPEX’s demands as an attempt at extortion. *See* Lucchetti, *supra* note 81, at C1. In response, Mr. Lehman, the former patent commissioner on the board of Mopex, stated that the conflict here presented “a perfect illustration of how patents protect the small and the weak in the marketplace.” *Id.*

⁹⁸ *Mopex, Inc.*, 250 F. Supp. 2d. at 328.

⁹⁹ Prior art has been defined as “[a]ll previous inventions in the field of an invention for which a patent is being sought. Prior art is used by the Patent and TM Office to decide whether the invention is sufficiently unique and non-intuitive to qualify for patent protection.” NOLO Glossary, <http://www.nolo.com/definition.cfm/Term/EB59C247-C71A-4CE0-8EA8CD69BD27E60D/alpha/P/> (last visited Sept. 1, 2005). Printed publications (e.g. books, articles in newspapers, journals, and periodicals, and websites that have appeared in the public domain) can serve as valid forms of prior art.

¹⁰⁰ *See id.* The novelty issue raised by the AMEX stems from 35 U.S.C. §102 (2000) which states that a patent cannot be granted or sustained by the PTO if there exists a single piece of publicly available “prior art” which contains each and every one of the elements claimed in the patent application (under the circumstances specified below). As explained by one patent attorney: “All you need is one reference that was publicly available, and that’s sufficient to invalidate a patent.” *See* Anne Marie Squeo, *In Patent Disputes, a Scramble to Prove Ideas are Old Hat*, WALL ST. J., Jan. 25, 2006, at A1. Section 102 specifically provides that a person shall be entitled to a patent unless:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . .

35 U.S.C. §102. The underlying rationale behind the novelty principle is that: “[O]nce an invention is in the public domain, it is no longer patentable by anyone.” *In re Hall*, 781 F.2d 897, 898 (Fed. Cir. 1986). Patent attorneys often refer to prior art that can serve to invalidate a patent previously issued by the PTO as “killer art.” *See* Squeo *supra*, at A1.

that that a fund which formerly traded on the AMEX known as World Equity Benchmark funds (“WEBS”) constituted prior art against the ‘685 Patent, thereby rendering it invalid.¹⁰¹ MOPEX counterclaimed against the AMEX for patent infringement, and also filed suit against eleven other parties involved with certain ETFs, including the Chicago Stock Exchange.¹⁰²

[¶32] On February 4, 2003, the Southern District of New York ruled in favor of the AMEX and invalidated the ‘685 Patent.¹⁰³ The Court examined whether Morgan Stanley’s filing with the SEC regarding the creation of WEBS (the “WEBS application”) qualified as an example of a publicly accessible publication that could serve as prior art to invalidate the ‘685 Patent under §102.¹⁰⁴ The Court held that it did, noting that a copy of the WEBS application was placed promptly in the SEC’s Reference Room on or around September 22, 1994, more than one year before the filing of the ‘685 Patent.¹⁰⁵ The

In determining whether a patent is novel, the PTO and courts examine the portion of the patent application known as the “claims.” See CHISUM, *supra* note 22, at 22, 73. The claims portion contains descriptions of what the invention “is.” See *id.* at 22, 73 (citing Judge Rich who explained that “*the name of the game is the claim* ... [and] the function of claims is to enable everyone to know, without going through a lawsuit, what infringes the patent and what does not. Giles S. Rich, *The Extent of the Protection and Interpretation of Claims – American Perspectives*, 21 INT’L REV. INDUS. PROP. & COPYRIGHT L. 497, 499, 501 (1990)). The actual details of the invention are typically not mentioned in the claims, but rather in the specification disclosure (“specification”) portion. See CHISUM, *supra* note 22, at 156. For purposes of §102(a) and §102(b), courts and the PTO first look to a patent’s claims, not the specification. See *id.* at 73. The specification may only come into consideration to help a court or the PTO understand certain terms in the claims.

Finally, if a piece of prior art possesses all of the elements in one or more of the claims in a patent application, then those claims will either be barred or invalidated. See *id.* at 324.

¹⁰¹ *Mopex, Inc.*, 250 F. Supp. 2d at 327.

¹⁰² Schaafsma, *supra* note 22, at 185.

¹⁰³ *Mopex, Inc.*, 250 F. Supp. 2d at 333. The World Equity Benchmark Funds (“WEBS”) were renamed as “iShare MCSI series” in 2000. *Id.* at 327.

¹⁰⁴ See *id.* at 325 (explaining that the company sponsoring a specific ETF must file an application with the SEC explaining the ETF in detail and “requesting exemption from certain provisions of the Investment Company Act of 1940” before it can legally trade on any U.S. financial exchange); *id.* at 328-29 (explaining that to qualify as a “printed publication” under §102, the Morgan Stanley WEBS application filing with the SEC had to have been accessible to the public for at least one year prior to the date of the ‘685 Patent application).

¹⁰⁵ See *id.* at 326. See also *id.* at 328 (noting a person skilled in this area would have been able to locate the WEBS application with “relative ease”); *id.* at 329 (noting that it was commonly known that the Reference Room contained all the SEC filings in the U.S. relating to ETFs, and the Reference Room was also the

Court next determined that the WEBs application covered or “anticipated” all of the claims asserted in the ‘685 Patent.¹⁰⁶ As a result, Court declared the ‘685 Patent to be invalid and Mopex’s suit was dismissed.¹⁰⁷

B. eSpeed Sues Some of the Largest Futures Exchanges in the U.S. and Abroad

[¶33] eSpeed, a technology firm that develops and sells financial software, began as a division of Cantor Fitzgerald, the Wall Street bond trading powerhouse.¹⁰⁸ In its filings with the SEC, eSpeed has indicated that they have relied heavily on intellectual property laws to sustain their business.¹⁰⁹

logical place to look for these filings). The Court contrasted the accessibility of Morgan Stanley’s SEC filing here with the accessibility of the doctoral dissertation in *In re Hall*, 781 F.2d 897, 898 (Fed. Cir. 1986). In *In re Hall*, a single copy of a doctoral dissertation that was found in a German university library qualified as a “printed publication” that was publicly accessible under §102. The dissertation served as prior art to strike down the contested patent. *Id.* In comparison, the filings in the SEC Reference Room here were far more accessible than the doctoral dissertation in *In re Hall*. *See id.* at 329.

¹⁰⁶ In the present case, there was only one disputed claim between the ‘685 Patent and the WEBs application: Claim 13 of the ‘685 Patent. *See Mopex, Inc.*, 250 F. Supp. 2d at 333. The Mopex claim included the term “sector” whereas this term was not expressly used in the WEBs application. *See id.* at 333. Therefore, the court had to analyze the meaning of the term “sector,” and determine whether it was a feature that was present – either explicitly or inherently – in the WEBs application. *See id.* at 331 (noting that in construing the term “sector,” the court looked to numerous sources of evidence such as financial dictionaries, the testimony of experts and witnesses, and even the different contexts in which the term was used in the patent application itself). The court eventually construed “sector” to mean a “subsection” or a “subdivision.” *See id.* Since these other terms were present in the WEBs application, the court held that the explicit absence of the term “sector” in the WEBs application was immaterial. *See id.* at 333. The court therefore held that the WEBs application did legally anticipate all of the claims in the ‘685 patent. *See id.*

¹⁰⁷ *See Mopex, Inc.*, 250 F. Supp. 2d at 333. In acknowledging the AMEX’s victory, Salvatore Sodano, the CEO and Chairman of the AMEX, expressed hope that the exchange could now focus on “continuing to lead the ETF product segment through its next generation of innovation and success.” Press Release, Am. Stock Exch., American Stock Exchange Vindicated by Court Ruling on Exchange Traded Fund Patent (Feb. 5, 2003), at http://www.amex.com/?href=/atamex/news/press/sn ETFpatent_020503.htm.

¹⁰⁸ *See Robert P. Merges, The Uninvited Guest: Patents on Wall Street* 28, Mar. 1, 2003, available at <http://repositories.cdlib.org/blewp/art88>.

¹⁰⁹ *See id.* (citing eSpeed 1999 Form 10-K, at <http://www.sec.gov/cgi-bin/browse-edgar>, at 42: “We expect to rely primarily on patent, copyright, trade secret and trademark laws to protect our proprietary technology and business methods. Our license with Cantor includes four issued United States patents as well as rights under domestic and foreign patent applications, including foreign applications currently filed by Cantor.”).

[¶34] In April, 2001 eSpeed paid \$3 million for the rights to U.S. Patent No. 4,903,201 (the “‘201 Patent”), a patent on a method for trading futures online,¹¹⁰ from the financial firm ETS.¹¹¹ eSpeed then took over the litigation initiated by ETS against three major U.S. commodities exchanges - the Chicago Board of Trade (“CMT”), the Chicago Mercantile Exchange (“CME”), and the New York Mercantile Exchange (“NYMEX”) - along with a number of trading firms, accusing all of them of infringing upon the ‘201 Patent by facilitating online electronic futures trading.¹¹²

[¶35] To illustrate the magnitude of the potential problem faced by the exchanges as a result of the eSpeed litigation: 16% of the 578.2 million derivatives trades executed from January 2001 through October 2001 on the U.S. commodities exchanges were electronic.¹¹³ Additionally, electronic trading has become increasingly popular and the number of executed electronic trades has continued to rise each year.¹¹⁴ An eSpeed victory would have required the exchanges to pay royalties and perhaps even licensing fees to eSpeed on every one of these electronic trades.¹¹⁵ As these royalties and/or licensing fees could have totalled hundreds of millions of dollars, electronic futures

¹¹⁰ In 1990, Susan Wagner, a former executive director of the Commodity Futures Trading Commission, received U.S. Patent No. U.S. Patent No. 4,903,201 (the “‘201 Patent”). Her method instantly matched “bids” from prospective buyers with “offers” from prospective sellers. As of 1999, a Dallas company known as Electronic Trading Systems Corp. (“ETS”) owned the rights to the ‘201 Patent. *See* Peter A. McKay, *Cantor Fitzgerald Wins a Round in Patent Dispute*, WALL ST. J., Oct. 25, 2001, at C13.

¹¹¹ Schaafsma, *supra* note 22, at 190 (citing Susan Bisset, *Electronic Trading Jeopardy: Patent Agreement Renews Fight*, FUTURES, May 2002, at 14, http://www.futuresmag.com/library/may02/04_0502_trendlines.pdf. The \$3 million sales price covered \$1.25 million in stock.

¹¹² *See id.* (noting that ETS went so far as to contend that the ‘201 Patent covered all online future trading platforms in which bids and offers are instantly matched); Tom Marshall, *Patent Investment Could Pay Off For Cantor*, at <http://www.espeed.com/pdf/patent.pdf> (reprinted from EUROMONEY, May 2002) (last visited Aug. 28, 2005).

¹¹³ *See* McKay, *supra* note 110, at C13. *See also* Lauren Foster, et al., *Patent Dispute Hits Exchange as IPO Nears*, FIN. TIMES, May 7, 2002, (explaining that in 2001, 81.9 million contracts were traded electronically on the Chicago Mercantile Exchange, representing 19.9 percent of the total trading volume).

¹¹⁴ *See* McKay, *supra* note 110.

¹¹⁵ *See* Foster, et al., *supra* note 113. An analyst at J.P Morgan estimated that an eSpeed victory could net the firm an additional \$50 million to \$100 million per year, doubling its revenue.

trading would have become more expensive for the entire public at large¹¹⁶ An eSpeed victory could have also paved the way for similar suits against other U.S. exchanges.

[¶36] On the international level, a number of financial exchanges outside of the U.S. grew concerned both about the scope of the eSpeed patent and the ramifications of any potential infringement declarations by the U.S. courts. Euronext-Paris, the financial exchange founded in 2000 through the merger of the Amsterdam, Brussels, and Paris stock exchanges, became one of eSpeed's infringement lawsuit targets.¹¹⁷ Intercontinental Exchange ("ICE"), the parent of London's International Petroleum Exchange, became a target as well.¹¹⁸ Shortly thereafter, the ICE decided to settle with eSpeed, reaching a five-year licensing agreement.¹¹⁹ They agreed to pay eSpeed \$2 million per year in royalties in addition to a variable number of cents for each contract traded until the '201 Patent expires in 2007.¹²⁰

C. The Ramifications of eSpeed's Legal Victory in a U.S. District Court in Texas

[¶37] In October, 2001, a U.S. District Court in Texas handed eSpeed a major legal victory. The District Court examined the contested claims in the '201 Patent and

¹¹⁶ *See id.* As an additional consideration, the Chicago Mercantile Exchange, the largest of all the U.S. futures exchanges, was rapidly moving toward becoming a public company at this time. The threat of an impending legal battle in electronic futures trading arena - a core part of its business - was of tremendous concern to them. *See id.*

¹¹⁷ *See id.* Euronext-Paris was the licensor of the trading software used by the CME that eSpeed charged with infringement upon the '201 Patent.

¹¹⁸ *See id.*

¹¹⁹ *See* FINEXTRA, *ICE Licenses Wagner Patent From eSpeed* (Apr. 4, 2002), <http://www.finextra.com/fullstory.asp?id=5290>.

¹²⁰ *See id.* Along with the \$2 million per year in royalties, ICE agreed to pay eSpeed either: (i) Ten cents for each contract traded per side or (ii) Twenty cents for each contract traded in a round trip - whichever is greater. Legal analysts speculated that eSpeed sought a quick settlement from the ICE so that they could use the funds to finance their other larger suits.

then broadly construed their scope in a manner that was very favorable to eSpeed.¹²¹ In the wake of this ruling, the CBOT and the CME decided to enter into licensing agreements with eSpeed to avoid engaging in further protracted litigation and possibly enduring losses at jury trials. Each exchange agreed to pay eSpeed \$15 million to license the '201 Patent.¹²² The NYMEX refused to join the other commodities exchanges, however, vowing instead to discredit the '201 Patent and to quash eSpeed's ability to "squeeze" the exchanges any further.¹²³

[¶38] The NYMEX held out for more than two years until it became increasingly concerned about the costs of the ongoing litigation. It spent over \$4 million in defending itself against the infringement action¹²⁴ As a result, it began to explore an amicable means to resolve the suit.¹²⁵ On December 22, 2003, eSpeed and the NYMEX announced that they had reached a settlement agreement regarding the '201 Patent. The NYMEX agreed to pay eSpeed \$8 million over the course of three years to license the patent.¹²⁶

With the addition of this settlement, eSpeed was scheduled to receive \$48 million in total

¹²¹ The District Court engaged in a process known as a "Markman hearing" to determine the scope of the claims in the '201 Patent as a matter of law. *Markman* hearings were instituted after *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996), wherein the Federal Circuit ruled that the construction of the scope of a patent's claims is a matter of law. Currently, *Markman* hearings take place before patent infringement suits ever reach juries. See CHISUM, *supra* note 22, at 877-81. Cantor Fitzgerald's Chief Executive acknowledged the significance of this ruling in commenting that "[i]ntellectual property is a fundamental asset of eSpeed's, and that's never been more obvious and important than now." McKay, *supra* note 110, at C13.

¹²² See *Sandor's Document May Challenge Espeed's Wagner Patent*, SEC. WEEK, Sept. 9, 2002, at 1 [hereinafter *Securities Week*]; See also FINEXTRA, *CME Recoups \$7.5 From Euronext To Settle Wagner Patent Dispute* (June 1, 2003), at <http://www.finextra.com/fullstory.asp?id=7653>. After settling with eSpeed, the CME brought a suit against Euronext for reimbursement of the \$15 million that they had agreed to pay eSpeed. On June 1, 2003, Euronext and the CME announced that they had entered into a settlement agreement wherein Euronext agreed to pay the CME \$7.5 million. This settlement effectively cut CME's overall losses in half (without factoring in the CME's legal expenses). See *id.*

¹²³ See *id.*; see also Foster et al., *supra* note 113.

¹²⁴ See Alison Guerriere, *Nymex Said Pursuing Settlement With Espeed - Nonferrous - New York Mercantile Exchange Patent Infringement Case*, AMERICAN METAL MARKET, Feb. 14, 2003, available at http://www.findarticles.com/p/articles/mi_m3MKT/is_2003_Feb_14/ai_97768089.

¹²⁵ See *id.*

payments from the exchanges and financial firms through 2007.¹²⁷ In summary, eSpeed managed to “squeeze” the major U.S. commodities exchanges and at least one foreign exchange into making payments in exchange for licenses to use the ‘201 Patent.

D. eSpeed’s Further Litigation and the Concerns of the U.S. Government

[¶39] eSpeed did not restrict its litigation efforts to attempts at extracting royalties from the ‘201 Patent alone. eSpeed became the exclusive licensee of U.S. Patent No. 6,560,580 (the “‘580 Patent”), a patent on an electronic trading method and system that was issued on May 6, 2003.¹²⁸ Shortly thereafter, eSpeed sued BrokerTec, the largest bond trading rival of Cantor Fitzgerald (eSpeed’s parent company), along with Britain’s ICAP Plc (hereinafter “ICAP”), BrokerTec’s parent company, for patent infringement.¹²⁹ eSpeed also named OM Technology, the Swedish technology company that had delivered BrokerTec’s trading platform, as a defendant in its \$64 million suit.¹³⁰

[¶40] On June 30, 2003, eSpeed sought a preliminary injunction against BrokerTec that greatly alarmed the U.S. Department of Treasury for a number of

¹²⁶ See Press Release, eSpeed, eSpeed and New York Mercantile Exchange Reach Settlement Agreement on Wagner Patent (Dec. 22, 2003), at <http://www.espeed.com/articles/article20031222.htm>.

¹²⁷ See *id.* See also Jim Kharouf, *Where Are Patents in the Financial Marketplace Headed*, STOCKS, FUTURES & OPTIONS MAG., Jan. 2005, at 56 (noting industry analysts’ observation that eSpeed’s legal victories triggered a “land rush” for patents in the futures industry).

¹²⁸ See Press Release, eSpeed, eSpeed Receives Exclusive Rights To Patent Related To Automated Trading (May 12, 2003), at <http://www.espeed.com/articles/article20030512b.htm>. eSpeed described U.S. Patent No. 6,560,580 as a patent on an “Automated Auction Control Processor.” The ‘580 Patent covered one of eSpeed’s electronic trading platforms that facilitated the wholesale trading of U.S. government securities such as U.S. Treasury securities.

¹²⁹ See Kari L. Dean, *And eSpeed Sues BrokerTec*, WIRED, July 1, 2003, at <http://www.wired.com/news/business/0,1367,59456,00.html>; Sharon Barner & Dave Luetgen, *Financial Services Firms Eye Prospects, Pitfalls In Intellectual Property*, Oct. 29, 2004, at http://www.foley.com/news/news_detail.aspx?newsid=1022.

¹³⁰ See FINEXTRA, *OMHEX to Fight \$64 Million eSpeed Patent Suit* (May 28, 2004), at <http://www.finextra.com/fullstory.asp?id=11912>.

reasons.¹³¹ Notably, the injunction would have left eSpeed as the sole provider of an electronic trading system for U.S. Treasury securities in the secondary market.¹³² A breakdown in eSpeed's system, would have devastated the secondary trading market.¹³³ Furthermore, temporarily shutting down BrokerTec, eSpeed's only rival, would have reduced both the liquidity and attractiveness of trading in Treasury securities.¹³⁴ In turn, this would have reduced the volume of trading in Treasury securities - thereby leading the U.S. government to pay more to borrow funds to finance the nation's debt.¹³⁵ As a result, the Treasury Department, through the Solicitor General, took the "extraordinary" step of filing a Statement of Interest in the case.¹³⁶ The District Court thereafter ruled that even if eSpeed had successfully demonstrated a likelihood of success on the merits, their request for injunctive relief would have been denied because of the overwhelming public interest against the injunction.¹³⁷

[¶41] On September 9, 2004, the Delaware District Court in favor of BrokerTec at a hearing to construe the scope of the contested claims in the '580 Patent.¹³⁸ The Court specifically held that a jury in any subsequent trial would have to give a broad

¹³¹ eSpeed, Inc. v. BrokerTec USA, L.L.C., No. 03-612-KAJ, 2004 U.S. Dist. LEXIS 385, at *2 (D. Del. Jan. 14, 2004).

¹³² See *id.* at *10-11

¹³³ See *id.*

¹³⁴ See *id.* at *10.

¹³⁵ See *id.* The District Court also noted that if eSpeed's competition was temporarily eliminated, the transaction costs paid by the dealers who trade in Treasury securities would rise. These costs would then be passed on to the Treasury Department upon their issuance of securities. See *id.* at *11.

¹³⁶ See *id.* at *8. Pursuant to 28 U.S.C. § 517:

The Solicitor General, or any officer of the Department of Justice, may be sent by the Attorney General to any State or district in the United States to attend to the interests of the United States in a suit pending in a court of the United States, or in a court of a State, or to attend to any other interest of the United States.

28 U.S.C. § 517 (2000).

¹³⁷ See *eSpeed, Inc.*, 2004 U.S. Dist. LEXIS 385, at *14-15.

¹³⁸ eSpeed, Inc. v. BrokerTec USA, L.L.C., No. 03-612-KAJ, 2004 U.S. Dist. LEXIS 20589 (D. Del. Sept. 9, 2004). The Court engaged in a *Markman* hearing here. See *supra* note 121 and accompanying text (explaining *Markman* hearings).

interpretation to certain contested terms, such as “system state” and “control trading” in ‘580 Patent claims.¹³⁹ Analysts commented that this ruling on the breadth of claims was potentially dispositive of eSpeed’s infringement case.¹⁴⁰ Finally, in February 2005, a federal court jury in Delaware hearing eSpeed’s suit against ICAP ruled the ‘580 Patent was invalid because eSpeed did not adequately explain how the electronic trading system in the patent worked (i.e. that it lacked “fully enabling disclosure” under 35 U.S.C. §112.)¹⁴¹

E. eSpeed Itself Becomes the Target of a Patent Infringement Suit

[¶42] In an example of universal karma or “what goes around comes around,” eSpeed itself became the target of a patent infringement suit on August 12, 2004.¹⁴² On that day, a company named Trading Technologies (“TT”) sued eSpeed for patent infringement in the U.S. District Court for the Northern District of Illinois.¹⁴³ TT had been granted two patents relating to the functionality of their “MD Trader” electronic trading software within the previous month.¹⁴⁴ TT charged eSpeed along with two other financial firms, Goldenberg, Hehmeyer & Co. and Kingtree Trading LLC, with

¹³⁹ *Id.* at *26.

¹⁴⁰ See, e.g., FRIED FRANK, *Major Matters* (Sept. 2004), at http://www.ffhsj.com/whatsnew/2004/sep_04-10.htm.

¹⁴¹ See FINEXTRA, *Jury Rules eSpeed Patent Invalid* (Feb. 23, 2005), at <http://www.finextra.com/fullstory.asp?id=13280>. In patent law terminology, eSpeed’s ‘580 patent did not provide a “written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains...” 35 U.S.C. § 112. See *supra* note 34 and accompanying text (discussing 35 U.S.C. § 112 among other statutory requirements for patentability).

¹⁴² See Daniel P. Collins, *What Goes Around... TT Gains Patent; Targets Wagner Patent Holder*, FUTURES, (Aug. 19, 2004), at <http://www.futuresmag.com/trendlines/archive/tl081904a.html>.

¹⁴³ *Id.*

¹⁴⁴ See TRADING TECHNOLOGIES, *Q&A Regarding TT Patents*, (Aug. 17, 2004), at http://www.tradingtechnologies.com/pdfs/TT_Patent_Statement_8.17.04.pdf. The validity of TT’s patent on their “MD Trader” electronic trading software was also affirmed by the patent offices in the United Kingdom and the European Union [hereinafter TT Q & A].

infringement on these patents.¹⁴⁵ Goldenberg, Hehmeyer and Kingtree Trading both decided to enter into settlement agreements with TT almost immediately.¹⁴⁶ TT's infringement suit against eSpeed is still ongoing, but the District Court noted on February 9, 2005 that TT may be likely to prevail on the merits.¹⁴⁷

F. TT Seeks Payments From The Four Largest Futures Exchanges In The World

[¶43] By the end of 2004, TT claimed that its trading software was being used to facilitate more than 50 percent of the public market share in the electronic trades that were being executed on the four largest futures exchanges in the world - the CME, the CBOT, Eurex, and Euronext Liffe.¹⁴⁸ In December 2004, TT sent an "open letter" to these exchanges urging all of them to embrace a plan whereby they would each agree to pay TT 2.5 cents for every futures and options trade that they executed.¹⁴⁹ TT referred to this plan as the "2.5¢ solution."¹⁵⁰ In exchange for these payments, TT stated that they

¹⁴⁵ See *id.* TT alleged that eSpeed, Goldenberg Hehmeyer, and Kingtree Trading were all infringing on two of their patents: U.S. Patent Nos. 6,766,304 and 6,772,132. These patents were awarded on July 20, 2004 and August 3, 2004, respectively.

¹⁴⁶ See Daniel P. Collins, *Technology Patent Threatens Status Quo*, at http://www.excitepr.com/03b_120104.html (last visited Aug. 28, 2005); TRADING TECHNOLOGIES, *Trading Technologies International, Inc. and Kingtree Trading LLC Announce Settlement Agreement of Pending Lawsuit*, at <http://www.tradingtechnologies.com/news/documents/Kingtree-TT10.26.04.pdf> (Oct. 26, 2004). Goldenberg Hehmeyer reached a settlement agreement with TT just two days after TT filed suit against them, and Kingtree Trading's settlement agreement with TT was announced on October 26, 2004, less than three months later.

¹⁴⁷ See *Trading Techs. Int'l v. eSpeed, Inc.*, 370 F. Supp. 2d 691 (N.D. Ill. 2005). The U.S. District Court in the Northern District of Illinois denied TT's motion for a preliminary injunction against eSpeed, finding little evidence that TT suffered irreparable harm as a result of eSpeed's activity. Nevertheless, the court maintained that TT was likely to succeed on the merits in the infringement suit against eSpeed, and further suggested that eSpeed should "reconsider their plans" regarding either continued litigation against TT or directly confronting TT in the marketplace.

¹⁴⁸ See TT Open Letter, *supra* note 15, at 4.

¹⁴⁹ *Id.* See also Daniel P. Collins, *TT Shows Its Hand In Patent Fight*, FUTURES, Feb. 2005, available at www.futuresmag.com/library/2005/02/05_0205trendlines.pdf+tt+and+cbot&hl=en [hereinafter Collins, *TT Patent Fight*]; FINANCIAL EXPRESS, *History Repeats Itself at Chicago Exchanges* (Nov. 7, 2004), at www.financialexpress-bd.com/index3.asp?cnd=11/7/2004§ion_id=16&newsid=3402&spcl=yes [hereinafter *TT History*].

¹⁵⁰ TT Open Letter, *supra* note 15, at 1.

would permanently forfeit the right to be an aggressor in any future patent infringement lawsuit, thereby allowing the exchanges and anyone else to use TT's software in any manner that they wanted.¹⁵¹ TT published this identical proposal in a full-page ad in *The Wall Street Journal* on January 7, 2005.¹⁵²

[¶44] Since the exchanges themselves are not currently using TT's trading software, they might not become direct targets in any infringement suit at the present time.¹⁵³ However, TT has a veiled threat to the exchanges in the form of 80 pending patents.¹⁵⁴ Furthermore, TT has intimated that if the exchanges do not agree to their "2.5¢ solution," they might refuse to distribute new products to the exchanges, and impose higher fees on the financial firms that use their software to trade on the exchanges.¹⁵⁵ The CME responded, declaring that they are not currently infringing on any TT patents,¹⁵⁶ The other three futures exchanges have not yet commented on either the "open letter" or *The Wall Street Journal* ad.¹⁵⁷

VI. FEDERAL PROPOSALS TO REFORM THE U.S. PATENT SYSTEM

[¶45] Some in-house legal departments of major U.S. financial exchanges are fairly certain that the volume of patent infringement suits filed against them will increase in the coming years since the number of business method patents filed by the general

¹⁵¹ *Id.*

¹⁵² *TT's Open Letter to the Futures Industry*, WALL ST. J., Jan. 7, 2005, at A22.

¹⁵³ See Collins, *TT Patent Fight*, *supra* note 149.

¹⁵⁴ *Id.*

¹⁵⁵ *TT History*, *supra* note 149. Industry analysts note that TT's threat to increase the costs to financial firms for using their trading software would be the equivalent of a tax on the entire industry. See *id.* This action would raise trading costs at large which, in turn, would reduce trading volume, thereby affecting the exchanges. *Id.* In response, TT contends that the "2.5¢ solution" would keep trading costs low and would actually be less profitable for the company overall than if they pursued the full extent of their legal remedies for patent infringement against other industry players. See Collins, *TT Patent Fight*, *supra* note 149.

public has exploded in the past decade.¹⁵⁸ Concerns about the anti-competitive effects resulting from the issuance of overly broad business method patents have led many industry leaders in a wide range of fields to clamor for further reforms in segments of the U.S. patent system.¹⁵⁹

¹⁵⁶ *See id.*

¹⁵⁷ *See id.*

¹⁵⁸ Interview with Sue Ellen Galish, Legal Counsel, New York Mercantile Exchange, in New York, N.Y. (Feb. 18, 2005)

¹⁵⁹ *See* Merges, *supra* note 108. Some patent analysts have pointed out that the present-day clamor for reforms in the patent industry is far from new in an attempt to demonstrate why some of the fears held by many industry leaders may be overblown. *See id.* at 7; *FIA Law*, *supra* note 8; Greg Miller & Davan Maharaj, *Will Cyber Patents Stymie Hollywood Giants? Internet: Debate Swirls as Rights are Granted for Delivery of Movies Online and Other Business Models*, L.A. TIMES, Sept. 13, 1999, at C1 (“[Critics of business method patents] said the same thing about chemicals and polymers and biotech.... These areas have helped to drive the economy for the last 20 years.”) (quoting Q. Todd Dickinson, PTO Commissioner)).

Going further, some analysts have analogized the present-day situation to what transpired after the Civil War regarding railroad patents. To illustrate, from 1850 onward, a number of improvements to railroad technologies such as certain safety devices were invented by mechanics who were considered to be “outside inventors” and were unaffiliated with the dominant industry powerhouses. *See, e.g.*, *Root v. Ry. Co.*, 105 U.S. 189 (1882) (concerning a patent on an improvement in railroad car safety brakes that was originally granted in 1852); *Ry. Co. v. Sayles*, 97 U.S. 554 (1878) (concerning patents on improvements in railroad car safety brakes that were granted in 1851 and 1852); *Lehigh Valley R.R. Co. v. Kearney*, 158 U.S. 461 (1895) (concerning a patent on an improvement in spark-arresters that was originally granted in 1871 and then reissued in 1872); *Watson v. Cincinnati, Indianapolis, St. Louis & Chi. Ry. Co.*, 132 U.S. 161 (1889) (concerning an improvement in grain-car railroad doors that was granted in 1878); *Weir v. Morden*, 125 U.S. 98 (1888) (concerning a patent on an improvement in railroad “frogs” originally granted in 1879 and then reissued that same year). The number of patents issued to these inventors steadily rose over the years, and the railroads adopted a limited number of these inventions. *See* Merges, *supra* note 108, at 21 (citing to JACOB SCHMOOKLER, *INVENTION AND ECONOMIC GROWTH* (Harvard University Press 1967)). However, after several large damage awards were granted to patent holders who sued the railroads for patent infringement, the railroad companies mobilized their resources and began to carefully monitor these infringement suits. *See, e.g.*, *Turrill v. Ill. Cent. R.R. Co.*, 24 F. Cas. 383 (N.D. Ill. 1867) (awarding damages for the long-term infringement by the railroads of the Cawood patent); *Cawood Patent*, 94 U.S. 695 (1877) (affirming the validity of the Cawood patent). Just as many industry leaders today are lobbying Congress to approve legislation to reform the patent system, railroad industry leaders back then lobbied Congress to deny the extension of patents that were unfavorable to the industry, and they sought to have Congress overturn a bill that enabled sympathetic juries to provide large damage awards in infringement suits. *See id.* Nevertheless, after the Supreme Court’s ruling in *Sayles* provided for a method for calculating damages in infringement suits that was favorable to the railroad industry, the industry thereafter eased its lobbying efforts. *See* Merges, *supra* note 108, at 21-22.

In response, proponents of changes in the patent system contend that many of the advances that took place in certain burgeoning industries throughout U.S. history such as railroads after the Civil War occurred in spite of the patent process and not because of it. The railroad industry was poised for growth as the country expanded westward after the Civil War, and massive industry expansion would have occurred regardless of whether a patent system was in place or not. Furthermore, business methods, unlike railroad inventions and inventions in other fields such as biotech, have been around since the beginning of time, but they constitute a relatively new category of patents. As a result, an analogy between these types of patents and railroad patents may not be entirely on point.

A. A Current Proposal to Reform the Manner in Which the Validity of U.S. Patents Can be Challenged - Outside of Federal Court - After They Are Issued

[¶46] The PTO currently has a system in place for reviewing the validity of patents *after* they are issued that is known as “reexamination.”¹⁶⁰ The reexamination process enables patent owners, targets of patent infringement suits, and third parties to bring prior art to the PTO’s attention that challenges the novelty of one or more of the

Researchers of financial patents have highlighted a number of financial inventions that perhaps should never have been granted patents by the PTO. *See, e.g.,* Lerner, *Two-Edged Sword*, *supra* note 31, at 14-17 (demonstrating that the PTO granted patents on a number of financial inventions whose applications were deficient in citing prior art or whose novelty status should have certainly been called into question). For example, in 1999, an individual inventor named Vergil L. Daugherty III was awarded U.S. Patent No. 5,884,286 for his invention: “Apparatus and process for executing an expirationless option transaction.” The invention dealt with a class of options which differ from conventional options in that conventional options expire after a specified date while expirationless options do not. The financial literature contained at least four examples of pricing models or strategies for trading expirationless options prior to 1992, and Daugherty’s application cited only one of them. Furthermore, Joseph Traub (a Columbia University employee) and two of his colleagues were awarded U.S. Patent No. 5,940,810 for their invention: “Estimation method and system for complex securities using low-discrepancy deterministic sequences.” The patent broadly covered a method to value securities using advanced simulation techniques known as “quasi Monte Carlo” techniques. While Mr. Traub’s patent application cited more examples of prior art than Mr. Daugherty’s patent, only one citation came from the realm of mathematics literature. Financial mathematicians in this area have also questioned whether the invention deserved a patent on grounds of obviousness under 35 U.S.C. § 103.

In response to the flood of business method patent applications received by the PTO in the wake of *State Street*, along with growing public concerns about the quality of the business method patents awarded, the PTO overhauled its procedures for examining business method patents in 2000. For example, the PTO instituted a “second level” of review for business method applications which subjected business method patents to special scrutiny. *See, e.g.,* Richard S. Taffet & Marc S. Hanish, *The Business Method Patent: The Uproar Rages - Should It?* (2001), at <http://www.thelenreid.com/articles/article/art91.htm>. The PTO has also expanded the number of business method patent examiners more than nine-fold in recent years, from 12 in 1995 to more than 100 today. *See* Kharouf, *supra* note 127, at 56. Nevertheless, reforms such as these have still not prevented the issuance of broad, anti-competitive business method patents that have been the subject of controversial judicial rulings. *See, e.g.,* Bradley C. Wright, *Using Patent Reexamination to Eliminate Invalid Business Method Patents*, *COMPUTERWORLD* (June 23, 2004), at <http://www.computerworld.com/managementtopics/management/story/0,10801,94033,00.html>. Examples of controversial business method patents that the PTO has issued in recent years have included patents on a method of swinging on a backyard swing, a method for reserving a bathroom, a crustless peanut butter and jelly sandwich with crimped edges, and Amazon’s “one-click” patent for shopping on the internet. *See id.*; Ashley N. Parker, *Comment: Problem Patents: Is Reexamination Truly a Viable Alternative to Litigation?*, 3 N.C. J.L. & TECH. 305 (2002), available at <http://www.jolt.unc.edu/vol3/Parker-V3I2.pdf>.

¹⁶⁰ The basic procedures of the current reexamination statute are contained in 35 U.S.C. §§ 301-307 and 37 C.F.R. §§ 1501-1.565.

claims in a previously issued patent.¹⁶¹ The PTO can then review the novelty of the patent at issue in light of that prior art.¹⁶² If a challenge is determined to be successful, the PTO will then invalidate portions of a patent or an entire patent.

[¶47] Presently, there are two different types of reexamination procedures: *ex parte* and *inter partes*. In *ex parte* reexaminations, members of the public cannot meaningfully challenge the validity of a patent because the proceedings are primarily between the PTO and patent owners.¹⁶³ In *inter partes* reexaminations, however, potential targets of infringement suits and third parties can submit prior art to the PTO and request a redetermination of whether a previously issued patent is still valid.¹⁶⁴ Recently enacted legislation also allows third parties to appeal adverse decisions to the Federal Circuit.¹⁶⁵

[¶48] The primary criticism of *inter partes* reexaminations is that the process is not fully adversarial. The proceedings lack procedural mechanisms such as discovery and cross-examination that are available in federal courts.¹⁶⁶ Additionally, in *inter partes* reexaminations, a third party that loses a challenge to the validity of one or more claims in a patent is subjected to a “draconian”¹⁶⁷ form of legal estoppel: That third party is thereafter estopped (in any subsequent PTO forum or in federal court) from making *any*

¹⁶¹ See PTO Proposal, *supra* note 17. See also *supra* note 100 and accompanying text for a discussion of the importance of every patent’s “claims.”

¹⁶² See *id.*

¹⁶³ See Rajiv P. Patel, *Underutilized Patent Reexaminations Can Improve Business Strategy*, FENWICK, at http://www.fenwick.com/docstore/publications/IP/IP_Articles/Patent_Reexaminations.pdf (last visited Sept. 1, 2005).

¹⁶⁴ See Robert E. Krebs & Hal J. Bohner, *Pre-litigation Strategies: Patent Reexamination*, FINDLAW, at <http://library.findlaw.com/2004/May/11/133411.html> (last visited Jan. 23, 2005). To illustrate, targets of infringement suits and third parties can request copies of patent holders’ responses to Office Actions issued by the PTO and they can also attempt to challenge or rebut patent holders’ responses to these Office Actions as well.

¹⁶⁵ Congress enacted sections 13105 and 13106 of subtitle A of the 21st Century Department of Justice Appropriations Authorization Act in 2002 to allow third parties the ability to appeal adverse decisions in *inter partes* reexaminations to the Federal Circuit. See *21st Century Department of Justice Appropriations Authorization Act*, Pub. L. No. 107-273, 116 Stat. 1758, 1899-1906 § 13202 (2002).

¹⁶⁶ See PTO Proposal, *supra* note 17.

additional prior art challenges to the validity of any of the claims in the patent that the PTO determines to be valid using any other prior art that was publicly available at that time.¹⁶⁸ Thus, in the event of a loss in an *inter partes* reexamination, third parties are almost entirely impaired in their abilities to raise prior art challenges to the validity of patents. Lastly, in the reexamination proceedings, patent owners can attempt to amend their claims to circumvent prior art challenges, and they can add new claims as well¹⁶⁹ - options that are unavailable in federal court.¹⁷⁰

[¶49] Congress has been recently considering legislation to create an alternative post-grant review process that would co-exist with the present reexamination system.¹⁷¹ Such a system would facilitate genuinely contested cases that would be presided over by a panel of administrative patent judges.¹⁷² The proceedings would differ from the current *inter partes* system in that they would include closely directed discovery and cross-examination.¹⁷³ Moreover, unlike the current *inter partes* system which only provides for invalidity challenges on the basis of lack of novelty (i.e. when potential prior art is disclosed to the PTO), the proposed system would enable the targets of patent infringement suits and third parties to raise challenges based upon other statutory

¹⁶⁷ See, e.g., CONLEY ROSE, *supra* note 17.

¹⁶⁸ See PTO Proposal, *supra* note 17. One analyst illustrated the negative ramifications of the estoppel provisions to third party challengers as follows:

These estoppel provisions provide significant benefits to the patent owners. They force the third party requester to put all her cards on the table at the outset of the reexamination process. Thus, a patent challenger cannot hide any instrumental prior art as insurance against future litigation with the patent holder. Nor may she reuse her “silver bullet” on a different day. The third party requester essentially gets only one shot at its invalidity claim.

Parker, *supra* note 159159, at 18.

¹⁶⁹ See Krebs, *supra* note 1644.

¹⁷⁰ Because of the widespread concerns that third parties have about their abilities to mount effective challenges to questionable patents under the current *inter partes* system, less than fifty challenges had been raised as of June 2004. See CONLEY ROSE, *supra* note 17.

¹⁷¹ See *supra* text accompanying note 17.

¹⁷² See H.R. 2795, 109th Cong. § 325 (2005).

grounds¹⁷⁴ such as lack of enablement,¹⁷⁵ nonobviousness,¹⁷⁶ or evidence of the patent holder's prior use or sale.¹⁷⁷ Challenges to a patent's validity could be made by anyone within nine months of its issuance, and thereafter by anyone threatened with an infringement suit involving that patent within six months of the alleged infringement.¹⁷⁸

VI. AN ANALYSIS OF THE POTENTIAL EFFICACY OF THE PTO'S PROPOSED PATENT POST-GRANT REVIEW SYSTEM, IN LIGHT OF THE PATENT INFRINGEMENT SUITS THAT HAVE BEEN WAGED AGAINST THE FINANCIAL EXCHANGES

[¶50] Even if Congress enacts the proposed post-grant review system (the “proposed system”), it would remain an open question whether this new system would enable third parties to finally mount more effective challenges to questionable patents. Through an examination of the legal battles waged in the financial patent arena described above, this Note contends that the proposed system will have a profound impact upon the landscape of patent infringement lawsuits in the financial arena in the coming years. This Note herein demonstrates how the proposed review system could have theoretically

¹⁷³ See PTO Proposal, *supra* note 17.

¹⁷⁴ See H.R. 2795 §324 (“The issues of invalidity that may be considered during the opposition proceeding are double patenting and any of the requirements for patentability set forth in sections 101, 102, 103, 112, and 251(d)”).

¹⁷⁵ See *supra* text accompanying note 34 (explaining that under 35 U.S.C. § 112, the patent application itself must contain fully enabling disclosure of the invention).

¹⁷⁶ See *supra* text accompanying note 34 (explaining that under 35 U.S.C. § 103, all patentable inventions must be “nonobvious” to ordinarily skilled artisans in the field of the invention).

¹⁷⁷ See, e.g., *Patent Quality Improvement: Post-Grant Opposition: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the House Comm. on the Judiciary*, 108th Cong. 17-32 (2004) (testimony of Jeffrey P. Kushan, Partner and Patent Attorney, Sidley Austin Brown & Wood, on behalf of Genentech, Inc.), available at http://commdocs.house.gov/committees/judiciary/hju94459.000/hju94459_0.HTM [hereinafter Kushan testimony] (expressing a popular belief that a new post-grant review system:

.... should permit challenges based on the existing grounds, as well as other issues implicated by public use or sale, provided that such challenge are grounded on objective factual evidence that can be evaluated by the PTO. In this respect, I note that many hold the belief that a substantial amount of “prior art” in the business method field is not captured in traditionally printed publications or patents. Allowing challenges based on evidence that clearly demonstrates that the invention was in public use or was sold before the patent was sought would help answer this issue definitively.)

enabled the financial exchanges, the owners of financial products,¹⁷⁹ and related third parties to save millions of dollars in litigation costs by providing them with a more attractive forum outside of federal court in which they could have preliminarily challenged the validity of the patents that were ultimately wielded against them.

[¶51] Drawing upon the facts in the infringement suits presented earlier, this Section first explores various difficulties that the financial exchanges and BrokerTec would have encountered if they had used the *inter partes* system to challenge the validity of the patents that Mopex and eSpeed wielded against them. This section then demonstrates that the proposed review system could have allowed the exchanges and BrokerTec to raise effective challenges to the validity of Mopex's and eSpeed's patents outside of federal court.

[¶52] In referring to the previously examined cases and to best illustrate this Note's central arguments, the following extreme but plausible hypothetical scenario is assumed: that the financial exchanges and BrokerTec (a) became fully aware of Mopex's and eSpeed's patents after they were issued, and (b) were also fully aware that these patents would eventually be wielded against them in infringement suits. This Section illustrates why it still could have been a grave tactical mistake for the financial exchanges and BrokerTec to have attempted to challenge any of those patents under the current *inter partes* review system. Furthermore, this Section demonstrates how the proposed system

¹⁷⁸ See H.R. 2795 § 323.

¹⁷⁹ Meyer Frucher, Chairman of the Philadelphia Stock Exchange, believes that it may not be the Exchanges but rather the owners of financial products that trade on the exchanges such as S&P and Russell that may wind up bearing a large part of the brunt of the patent infringement lawsuits in the future. See E-mail from Meyer Frucher, Chairman of the Philadelphia Stock Exchange, to author (on file with author dated Feb. 21, 2005).

could empower potential targets of future infringement suits to become more proactive in challenging overbroad or questionable patents.

A. The AMEX/Mopex Suit

[¶53] In *Amex, LLC v. Mopex, Inc.*, the AMEX invalidated the '685 patent on novelty grounds in a declaratory judgment action in federal court by pointing out that Morgan Stanley's WEBS application with the SEC constituted valid prior art.¹⁸⁰ Alternatively, if the AMEX had attempted to bring the WEBS application to the PTO's attention as part of an *inter partes* reexamination - instead of going to federal court - and if the PTO had then sustained the validity of the claims in the '685 in favor of Mopex, the consequences for the AMEX could have been disastrous: The AMEX would have been completely estopped from making any other novelty challenges to the validity of the '685 patent using any other prior art in the public domain in any future appeal in federal court.¹⁸¹ The AMEX could have then only challenged the validity of the '685 patent on grounds other than novelty, such as lack of enablement, nonobviousness, or prior use or sale.¹⁸² If the AMEX had been unable to defeat the presumption of validity¹⁸³ that the federal courts would have afforded the '685 patent using any of these alternative legal grounds, the AMEX would have lost its case.¹⁸⁴

[¶54] Consequently, the AMEX's optimal legal strategy here was to avoid an *inter partes* proceeding entirely and to either (a) patiently sit back instead, hoping that they would not get sued by Mopex – an unlikely occurrence given the nature of the '685

¹⁸⁰ See *supra* text accompanying notes 96-109.

¹⁸¹ See *supra* text accompanying notes 170-71.

¹⁸² See *supra* text accompanying notes 176-80.

¹⁸³ See Krebs, *supra* note 164.

patent and its similarities to some of the products that traded on the AMEX,¹⁸⁵ or (b) file a declaratory judgment action in federal district court to invalidate the '685 patent. Once the AMEX entered federal court, it then had to incur the high costs of patent litigation.¹⁸⁶ Thus, the AMEX's optimal strategy actually involved spending a large amount of money to defeat a patent using a document that was already sitting in a government office and was viewable by every American citizen.¹⁸⁷ Clearly, under the current reexamination system, the AMEX would have been unable to introduce this basic document to the PTO to contest the '685 patent without suffering a number of potentially dire consequences.

[¶55] In contrast, under the proposed review system, if the AMEX had full knowledge of Mopex's '685 patent along with its potential as a weapon in a future infringement suit, challenging the '685 patent (either when the '685 patent first issued or when the AMEX was targeted for infringement) would have been a viable option. The proposed review system would have afforded the AMEX the benefits of certain procedural and evidentiary mechanisms that are available in federal court (and unavailable in *inter partes* reexaminations), such as discovery and cross-examination, to possibly uncover any further evidence challenging the validity of the '685 patent.¹⁸⁸ Moreover, if the AMEX had lost in the initial proceeding, it could have appealed the ruling, and it may not have been estopped from introducing certain additional prior art

¹⁸⁴ See *supra* text accompanying note 99.

¹⁸⁵ See *supra* text accompanying notes 92-94.

¹⁸⁶ See *supra* text accompanying note 20 (discussing the exorbitant cost of patent litigation in federal court).

¹⁸⁷ See *supra* text accompanying notes 102-110.

¹⁸⁸ See H.R. 2795, 109th Cong. §§ 328, 330 (2005). See also PTO Proposal, *supra* note 17 (explaining the U.S. PTO's recommendation that live cross-examination be allowed where necessary); *Patent Quality Improvement: Post-Grant Opposition: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the House Comm. on the Judiciary*, 108th Cong. 32-59 (2004) (testimony of Michael K. Kirk, Executive Director, American Intellectual Property Law Association), available at http://commdocs.house.gov/committees/judiciary/hju94459.000/hju94459_0.HTM.

challenges in subsequent proceedings.¹⁸⁹ Additionally, under the proposed system, the AMEX could have potentially introduced evidence to the PTO other than prior art, such as lack of enablement or prior use or sale to trigger a review of the ‘685 patent;¹⁹⁰ these options are currently unavailable under the *inter partes* reexamination system. Thus, in a role reversal, the AMEX could have taken the offensive by bringing the WEBs document to the PTO’s attention to invalidate the ‘685 patent, fully aware that they could mount other formidable potential defenses in federal court on appeal. Finally, the cost to the AMEX would have been minimal relative to the cost of litigating in federal court.

B. The eSpeed/NYMEX Suit

[¶56] On December 22, 2003, eSpeed and the NYMEX arrived at a settlement agreement in eSpeed’s infringement suit regarding the ‘201 Patent.¹⁹¹ More than one year earlier, while the suit was still ongoing, the worldwide financial media announced that a document was discovered that might have represented prior art to invalidate eSpeed’s

¹⁸⁹ The estoppel provisions contained in current versions of the proposed post-grant review system are more moderate from those contained in the current reexamination system.

On background, the estoppel provisions under the current proposed review system (e.g. House Bill 2795 § 336(a)(1)) prevent targets of infringement suits and third parties (“the opposer”) from raising only those issues of fact or law that were decided against them in any future PTO administrative proceeding or in federal court. *See* H.R. 2795 § 336(a)(1).

However, it is also possible that these estoppel provisions would apply only to the adjudicated issues and presented evidence. *See* Stephen G. Kunin, *House Committee Print Draft* (Apr. 14, 2005) at <http://www.law.washington.edu/Casrip/PatentReform/KuninPatentAct2005Rev1.ppt>.

Specifically, House Bill 2795 § 336(a)(2) contains an exception to estoppel provisions in Section 336(a)(1). It provides that if the opposer later produces “additional factual evidence ... that could not reasonably have been discovered by the opposer” at the time of the original post-grant review, the opposer can then raise that factual evidence (along with any determined issue of law for which the issue of fact was necessary) in a subsequent PTO administrative proceeding or in federal court. To illustrate, in situations when a crucial document that could serve as evidence of prior art or public use relating to an issued patent could not be originally obtained by the opposer through the limited discovery provided by the post-grant review procedures, an opposer could possibly raise that document in a future PTO administrative forum or in federal court to challenge the validity of the contested patent.

¹⁹⁰ *See supra* text accompanying notes 176-80.

¹⁹¹ *See supra* text accompanying note 128-29.

‘201 Patent.¹⁹² The 130 page document (the “Sandor document”) was written more than thirty years earlier by Richard Sandor, a well-known industry figure.¹⁹³ The NYMEX then incorporated the Sandor document into its overall defense strategy.¹⁹⁴ If the trial had run its course and the District Court had ultimately found that this document anticipated all of the claims in the ‘201 Patent before the case settled, this document would have invalidated the ‘201 Patent.¹⁹⁵

[¶57] Keeping in mind that the NYMEX only found out about the Sandor document several years *after* it was first charged with infringing upon the ‘201 Patent: If the NYMEX had originally attempted to invalidate the ‘201 Patent through an *inter partes* reexamination - by submitting prior art publications to the PTO that were publicly available at the time that it was first charged with infringing upon the ‘201 Patent - and then lost its challenge, the NYMEX could have been estopped from invoking the Sandor document at any later time on appeal in an attempt to invalidate the ‘201 Patent on prior art grounds (provided that the appellate body ruled that the Sandor document or detailed references to it were publicly available at the time.)¹⁹⁶ Essentially, the NYMEX could have been estopped from marshaling one of its most powerful weapons to invalidate the ‘201 Patent on appeal in federal court. Thus in hindsight, the NYMEX’s optimal legal

¹⁹² See Securities Week, *supra* note 122. The finding of the “Sandor document” was announced in September 2002.

¹⁹³ See *id.* Richard Sandor, known to some as the “father of financial futures,” wrote an article in 1969 describing a commodities future exchange hooked up by a “vast communication network” without a physical trading floor. Sandor had been unable to locate the document until recently, but he did have older newspaper clippings regarding the work. Furthermore, an article in *Financial Times* in 1970 had described his invention in some detail.

¹⁹⁴ See *id.*

¹⁹⁵ See *id.* The discovery of the Sandor document actually had no bearing on the settlement agreements between eSpeed and both the CBOT and the CME. Those agreements contained a clause stating that even if the ‘201 patent was invalidated, the exchanges would still have to continue to pay fees to eSpeed. However, the settlement between eSpeed and ICE did contain an escape clause that relieved the ICE from any obligations to pay eSpeed if the ‘201 patent was invalidated.

¹⁹⁶ See *supra* text accompanying notes 170-71.

strategy here, outside of settling at an earlier stage, also involved first hoping to not get sued and only attacking the ‘201 Patent’s validity if/when an infringement lawsuit was filed against it. Nevertheless, this optimal strategy cost it more than \$4 million in legal fees,¹⁹⁷ and in the end, it still wound up settling.¹⁹⁸

[¶58] In contrast, under the proposed review system, if the NYMEX had challenged the validity of the ‘201 Patent in a PTO administrative forum on prior art grounds and had lost, the NYMEX might not have been estopped from introducing the Sandor document as prior art at a later time on appeal. The estoppel provisions in current versions of the proposed post-grant review system are more moderate than those in the *inter partes* paradigm and allow targets of infringement suits to raise factual evidence “that could not reasonably have been discovered” at the time of the original post-grant review in a subsequent PTO administrative proceeding or in federal court.¹⁹⁹ Thus, if a subsequent PTO administrative proceeding or a federal court held that the Sandor document could not reasonably have been discovered at the time of the original post-grant review hearing, the NYMEX could have produced it as prior art in an attempt to invalidate the ‘201 Patent in a subsequent proceeding. Moreover, similar to the AMEX/Mopex hypothetical above, the NYMEX could have challenged the validity of the ‘201 Patent on other grounds as well, such as lack of enablement, nonobviousness, or prior use or sale.²⁰⁰ Thus, the NYMEX could have also considered challenging the ‘201 Patent at an earlier stage rather than waiting to be sued for patent infringement and then

¹⁹⁷ See *supra* text accompanying note 126.

¹⁹⁸ See *supra* text accompanying note 128-29.

¹⁹⁹ See *supra* text accompanying note 191.

²⁰⁰ See *supra* text accompanying notes 176-80.

having to incur tremendous legal fees over a period of years in an attempt to invalidate the patent in federal court.

C. The eSpeed/BrokerTec Suit

[¶59] In a pre-trial hearing in eSpeed's suit against Broker Tec, BrokerTec acquired videotaped testimony from eSpeed's CEO Howard Lutnick about an earlier trading system developed by Cantor Fitzgerald, eSpeed's parent company, that could have served as prior art to invalidate eSpeed's '580 Patent.²⁰¹ Then, on January 28, 2005, it was announced that Mr. Lutnick was expected to testify at the patent infringement trial regarding his earlier videotaped testimony.²⁰² Because *inter partes* reexaminations allow third parties to originally introduce only printed publications as prior art to the PTO,²⁰³ BrokerTec would not have been able to present any evidence drawn from Mr. Lutnick's oral testimony to the PTO in an *inter partes* reexamination regarding the validity of the '580 Patent.²⁰⁴ Furthermore, since *inter partes* reexaminations lack procedural mechanisms that are available in federal court, such as discovery and cross-examination,²⁰⁵ BrokerTec might not have been able to acquire Mr. Lutnick's videotaped testimony in the first place. Even if BrokerTec did somehow acquire videotaped testimony from Mr. Lutnick, they still would not have been able to cross-examine him about his testimony in an *inter partes* reexamination.²⁰⁶ Additionally, if BrokerTec had lost its novelty/prior art challenges to the validity of any of the claims in eSpeed's patent

²⁰¹ See BLOOMBERG, *ESpeed's Lutnick Expected to Testify in BrokerTec Patent Trial* (Jan. 28, 2005), at <http://www.bloomberg.com/apps/news?pid=10000103&sid=a2B2K5PBAU0o&refer=us>.

²⁰² See *id.*

²⁰³ See Kushan testimony, *supra* note 177.

²⁰⁴ See *id.* *Inter partes* reexamination proceedings only allow the submission of printed publications as evidence of prior art to challenge the validity of patents.

²⁰⁵ See *supra* text accompanying note 168.

in an *inter partes* reexamination, BrokerTec would have been estopped from asserting any other novelty/prior art challenges on appeal that could have theoretically been made at the time of the original *inter partes* reexamination.²⁰⁷ eSpeed could have also attempted to amend any contested claims in their patent to circumvent prior art introduced by BrokerTec in an *inter partes* reexamination.²⁰⁸ Clearly, opting for an *inter partes* reexamination would not have been in BrokerTec's best interests.

[¶60] In contrast, under the proposed review system, BrokerTec could have potentially acquired testimony from Mr. Lutnick regarding Cantor Fitzgerald's trading systems.²⁰⁹ BrokerTec would have also been permitted to cross-examine him about his testimony in a PTO administrative hearing.²¹⁰ In this particular instance, however, BrokerTec probably would have wanted to acquire this information in a federal court setting, rather than through the proposed PTO post-grant review process, because the discovery and cross-examination rules in the federal court system are generally more expansive than those in the proposed review system.²¹¹ Therefore, even with the proposed review system in place, BrokerTec's optimal legal strategy might still have consisted of

²⁰⁶ *See id.*

²⁰⁷ *See supra* text accompanying notes 170.

²⁰⁸ *See supra* text accompanying note 171-72.

²⁰⁹ *See supra* text accompanying note 19.

²¹⁰ *See* H.R. 2795, 109th Cong. §§ 328, 330 (2005). *See also* Kushan testimony, *supra* note 177 (expressing the belief that an improved post-grant review system should allow evidence other than prior art in the form of printed publications to trigger a patent review).

²¹¹ In a PTO administrative forum, strict controls would be placed on the availability and extent of permitted discovery and cross examination. *See e.g. AIPLA Response to the October 2003 Federal Trade Commission Report* (Apr. 21, 2004), 5, at http://www.aipla.org/Content/ContentGroups/Issues_and_Advocacy/Comments2/Patent_and_Trademark_Office/2004/ResponseToFTC.pdf [hereinafter AIPLA Response]. The entire post-grant review process, including discovery and the actual trial, might have to be completed within a one year period. *See* H.R. 2795, 109th Cong. § 337 (2005). *See also* HEARING BEFORE THE SUBCOMMITTEE ON COURTS, THE INTERNET, AND INTELLECTUAL PROPERTY, OF THE COMMITTEE ON THE JUDICIARY, HOUSE OF REPRESENTATIVES, *Patent Quality Improvement: Post-Grant Opposition*, 108th Cong., 2nd Sess., Testimony of James A. Toupin (Jun. 24, 2004), at http://commdocs.house.gov/committees/judiciary/hju94459.000/hju94459_0.HTM [hereinafter Toupin Testimony].

hoping not to get sued by eSpeed for infringement and then litigating the entire case in federal court if/when they were actually sued. Importantly though, BrokerTec could have considered challenging eSpeed's patent in the proposed review phase. If they had lost, they could have introduced Mr. Lutnick's testimony in federal court in a subsequent proceeding on appeal.²¹²

[¶61] In summary, the PTO's proposed system would have theoretically provided the financial exchanges in the above mentioned scenarios with a potentially attractive alternative forum in which they could have preemptively challenged the validity of the patents that were eventually wielded against them.

D. Why the Post-Grant Review System May Not Become a Panacea for the Problems Stemming from Litigation Over Invalid Patents

[¶62] One major problem with the proposed post-grant review system, as highlighted in the above theoretical analysis of the eSpeed/BrokerTec suit, is that well-capitalized parties who are capable of making some of the most powerful challenges to questionable patents may entirely refrain from doing so under the new system, opting to only litigate patents in federal court, the forum in which they believe they can get the greatest procedural and evidentiary benefits.²¹³ As previously discussed, federal courts provide rules for discovery and other evidentiary procedures that are generally more expansive than those that would be provided in a PTO administrative post-grant review

²¹² See H.R. 2795, 109th Cong. § 334 (2005).

²¹³ See *supra* text accompanying note 211. Furthermore, in consideration of factors such as the limitations that would be imposed upon discovery, the fact that discovery would be closely directed, and the time limitations on the length of the entire post-grant review proceeding (e.g. one year), many firms with deep pockets possessing the ability to endure protracted litigation could opt for trials in federal court when they believe that certain materials that may take time to come up in discovery could turn the tide in their cases.

forum.²¹⁴ Moreover, while third parties will be able to appeal unfavorable PTO administrative rulings in federal court,²¹⁵ these rulings can be fully enforceable and carry estoppel effects.²¹⁶ Because many parties may only want to litigate matters as crucial to their industry success as patents in federal court instead of a PTO adjudicative forum, numerous invalid patents may still continue to remain in force unless they are eventually challenged in expensive federal court proceedings.

[¶63] Additionally, the proposed review system's moderated estoppel provisions would allow parties to bifurcate their attacks on the validity of patents between the PTO administrative forum and federal court. To illustrate, parties could raise weaker challenges to the validity of patents in a PTO administrative review forum, and if they lose, they could then raise their strongest attacks in federal court at a later time.²¹⁷ Essentially, many parties could employ the review system solely as a potential prelude to federal court or as a forum for burdening competitors (and the PTO by extension) with vexatious or paltry challenges to the validity of their patents.²¹⁸

²¹⁴ See AIPLA Response, *supra* note 211.

²¹⁵ See H.R. 2795, 109th Cong. § 334 (2005).

²¹⁶ See *id.* at § 336.

²¹⁷ As a hypothetical illustration, drawing upon eSpeed/BrokerTec case analyzed herein: If BrokerTec had originally believed that it could raise its strongest challenge to the validity of eSpeed's '508 patent on grounds of lack of enablement under 35 U.S.C. §112 (the '508 patent was ultimately invalidated on this ground), it could have decided to refrain from litigating this issue in any forum other than in federal court. Instead, it could have introduced novelty or other challenges to validity of the '508 patent in an earlier PTO post-grant review proceeding to see if it could have invalidated the patent on any of those alternative grounds first.

²¹⁸ See, e.g., 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*, 27 (2004), at <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1133&context=boaltwp> (noting that "post-grant patent revocations could be "misused by firms who simply want to slow down or injure a patentee-firm").

In response to concerns about the harassment of patent owners, proponents of the new review system argue that review petitioners should meet suitable threshold showings of invalidity to initially proceed. The system would also set limitations on the number of petitions for review that can be filed against any particular patent. See AIPLA Reponse, *supra* note 211.

[¶64] Moreover, similar to the current *inter partes* reexamination system, the proposed review system will still grant patent holders an opportunity to amend claims in their patents to circumvent validity challenges.²¹⁹ Many third parties may therefore be hesitant to bring their strongest challenges in a PTO administrative forum, if patent holders can turn around and use the substance of these challenges to reword and thereby strengthen their patents.

[¶65] Thus, in practice, the proposed post-grant review system may not become a panacea for the problems that the potential future targets of infringement suits such as the financial exchanges and related third parties (hereinafter “infringement suit targets”) will experience owing to vexatious patent infringement suits in the coming years. At most, the proposed system may represent a single but important step toward empowering infringement suit targets to more effectively challenge to patents in a forum outside of federal court. The proposed system essentially represents a “mop-up” operation, whereby the public can attempt to fix mistakes made by the PTO by challenging questionable patents only *after* they have been issued. This Note therefore contends that the proposed system does not extend far enough to prevent entities such as the financial exchanges from becoming the targets of unnecessary and expensive infringement suits in the first place. It will explore now a complementary and far more effective solution that would

Nevertheless, while the proposed system may contain well-conceived measures to curtail abuses, it will still be feasible for many firms to commit these abuses under the guise of responsible litigation at relatively little cost under the proposed system as opposed to federal court.

²¹⁹ H.R. 2795, 109th Cong. § 327 (2005) provides:

The patent owner is entitled to request amendment of any claims that are the subject of an opposition proceeding under this chapter, including by the addition of new claims. Any such request for amendment shall be filed with the patent owner's response to an opposition request. The panel may permit further requests for amendment of the claims only upon good cause shown by the patent owner. No amendment enlarging the scope of the claims of the patent shall be permitted in the opposition proceeding.

provide the public with an additional means to challenge questionable patents *before* they are issued by the PTO.²²⁰

VII. A NOVEL AND COMPLEMENTARY SOLUTION THAT WOULD PREVENT MANY OF THE PROBLEMS STEMMING FROM LITIGATION OVER INVALID PATENTS FROM EVER ARISING IN THE FIRST PLACE

A. The Success of the “Openness” Approach in Intellectual Disciplines Outside of Patent Law Such as Computer Science and Cryptography

[¶66] Former U.S. Supreme Court Justice Brandeis, in one of his best known statements, wrote that “[p]ublicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman.”²²¹ In other words, Justice Brandeis maintained that ideal solutions to problems are often reached by exposing them to the public at large or by “airing them out” as much as possible, rather than trying to solve them within a predetermined framework. The concept that maximum public exposure or full transparency leads to greater solutions has already been embraced by various intellectual disciplines, ranging from computer programming to secretive fields such as cryptography, often leading to solutions that would have been unthinkable not too long ago.²²²

²²⁰ An old Yiddish proverb, in addressing the difference between a smart and a clever person, states that a smart person knows how to avoid situations that the clever person knows how to get out of. The most highly intelligent and economical systems, in the both the natural world and in artificial settings, employ both “smart” capabilities - to prevent problems from arising in the first place, and “clever” capabilities – to address problems when they do arise. The proposed post-grant review system represents a “clever” approach to addressing problems stemming from the PTO’s issuance of questionable patents. It deals with problems only *after* they have been created. In contrast, a “smart” approach would work to prevent the issuance of questionable patents in the first place. Perhaps the most effective patent system possible should employ the “smartest” and “cleverest” possible aspects to address the problem of questionable patents.

²²¹ LOUIS BRANDEIS, *OTHER PEOPLE'S MONEY* 62 (National Home Library Foundation 1933 ed.).

²²² See *infra* text accompanying notes 226-29.

[¶67] In the field of computer programming, for example, many widely used programs today such as (a) the Linux operating system (a leading rival to the Microsoft operating system) and (b) the Apache Web server (a program used by many servers hosting internet traffic) were developed using what is popularly known as an “Open Source” method of programming, a method whereby programmers all over the world share their work and collaborate on portions of projects over the internet.²²³ Open Source programs are not developed by a singular entity, but by programmers anywhere who are able to make suitable contributions. Moreover, to test software programs after development but before distribution, many leading software companies such as Google or Adobe routinely release their software to the public in what is known as “beta” versions or stages, to obtain a wide range of feedback and to see if the public can identify problems that their own in-house testers could not.²²⁴

[¶68] The open-source paradigm has successfully been extended beyond software product development to other projects such as online encyclopedias, online archives of peer-reviewed scientific articles, and even a project known as Openlaw,²²⁵ an experiment in the crafting of legal documents such as pleadings and briefs in an open forum. Remarkably, even the field of cryptography, a field recognized for its insularity and

²²³ See WIKIPEDIA, *Open Source*, at http://en.wikipedia.org/wiki/Open_source (last visited Sep. 1, 2005); Charles M. Schweik & Andrei Semenov, *The Institutional Design of Open Source Programming: Implications for Addressing Complex Public Policy and Management Problems*, at http://www.firstmonday.org/issues/issue8_1/schweik/ (last visited Sep. 1, 2005).

²²⁴ See, e.g., WIKIPEDIA, *Development Stage*, at http://en.wikipedia.org/wiki/Development_stage (last visited Mar. 10, 2006) (further explaining that programs such as Google news and Gmail have been in beta stage for an extended period of time).

²²⁵ Available at <http://cyber.law.harvard.edu/openlaw/> (last visited Jan. 26, 2006).

secretiveness, has accepted that aspects of openness contribute to some of the most secure and efficient message encryption schemes that have ever been devised.²²⁶

B. An Experiment in Invoking the Open-Source Paradigm Within Patent Law: The Story of BountyQuest

[¶69] Turning back to the world of intellectual property, many industry experts maintain that the PTO does not have a superlative track record in issuing patents capable of withstanding validity challenges.²²⁷ Nearly half of all patents are invalidated when litigated in federal court.²²⁸ In particular, determining the novelty of business method and

²²⁶ For example, throughout history, cryptographers presumed that the encryption/decryption “key” – i.e. the information such as a set of numbers of letters that senders and recipients of coded messages apply to their messages to be able to encrypt/decrypt them – had to be kept entirely secret from all outside parties for the cryptographic system to work effectively. However, in the 1970’s, several mathematicians around the world independently discovered a novel method of cryptography that combined a public key with a private key that came to be known as “public-key cryptography.” See WIKIPEDIA, *Public-key cryptography*, at http://en.wikipedia.org/wiki/Public-key_cryptography (last visited Sep. 1, 2005) Throughout history, cryptographic keys were used as follows:

For most of the history of cryptography, a key had to be kept absolutely secret and would be agreed upon beforehand using a secure, but non-cryptographic, method; for example, a face-to-face meeting or a trusted courier. There are a number of significant practical difficulties in this approach to distributing keys. Public-key cryptography was invented to address these drawbacks. With publickey cryptography, users can communicate securely over an insecure channel without having to agree upon a shared key beforehand.

Id.

Using public-key cryptography, two or more people can communicate for a period of time, in secret, over any insecure channel such as the telephone or the Internet. Today, public-key cryptography is widely used by intelligence agencies around the world and is employed in various commercial applications such as digital cash.

The power of openness in the field of cryptography was recently embraced by the U.S. Commerce Department’s National Institute of Standards and Technology (“NIST”). Around the turn of the millennium, the NIST sought a new information technology encryption standard to “help the U.S. protect its critical information infrastructures and ensure privacy for personal information about individual Americans.” See NIST, *Commerce Secretary Announces New Standard for Global Information Security* (Dec. 4, 2001), at http://www.nist.gov/public_affairs/releases/g01-111.htm. The NIST did not rely upon its own internal resources. Instead, it held an international competition in which researchers from around submitted encryption schemes. The NIST, in a collaborative effort with leading cryptographers around the world, then selected the system that they believed would provide the best combination of security, performance, efficiency and flexibility. The algorithm selected was developed by Belgian cryptographers Joan Daemen International and Vincent Rijmen. See *id.* The international competition and collaboration that existed here would not have been possible if the NIST had not embraced a sprit of openness to find the best possible solution.

²²⁷ See Walker, *supra* note 19.

²²⁸ See *id.*

software patents in light of the available prior art presents significant problems to the PTO since much of the prior art in these fields cannot be found in any printed publications.²²⁹ Specifically, there are no peer-reviewed journals of business methods or software innovations, and many of the patents in these fields are approved with little or no prior art.²³⁰ Additionally, uncovering evidence of prior public use of business method or software inventions that can invalidate a patent can be a difficult task, even with the array of tools at a patent examiner's disposal.²³¹ Finally, because of PTO backlogs in reviewing filed patents, PTO examiners frequently do not spend more than 20 hours evaluating each application; they often fail to locate obscure but pertinent examples of prior art in that time.²³²

[¶70] In an attempt to exploit public concerns about the PTO's issuance of invalid patents in all industries, Boston patent attorney Charles Cella co-founded BountyQuest.²³³ BountyQuest was formed in January 2000 with financial backing from software industry titans such as Amazon.com's founder, Jeff Bezos, and Tim O'Reilly, the head of O'Reilly Publishing.²³⁴ At its core, BountyQuest embraced the "Open Source" paradigm by rewarding anyone in the public, outside of the PTO, who could discover prior art that could invalidate a patent after it was issued.²³⁵

[¶71] In a nutshell, individuals or companies that sought information such as prior art to invalidate a rival's patent contacted BountyQuest. They informed BountyQuest

²²⁹ See, e.g., Kushan testimony, *supra* note 177; Garfinkel, *supra* note 20.

²³⁰ See Michael J. Felton, PATENTS AND PROPERTY, *A Call for Bounty Hunters* (2001), at <http://pubs.acs.org/subscribe/journals/mdd/v04/i03/html/03patents.html>.

²³¹ See, e.g., Kushan testimony, *supra* note 177; Garfinkel, *supra* note 20.

²³² See Squeo, *supra* note 100, at A8.

²³³ BountyQuest's website was formerly located at the URL: <http://www.bountyquest.com>.

²³⁴ See Felton, *supra* note 230.

²³⁵ See BUSINESS WEEK ONLINE, *Q&A: Junk-Patent Perps, Beware of BountyQuest* (April 30, 2001), at http://www.businessweek.com/magazine/content/01_18/b3730038.htm [hereinafter BountyQuest Q&A].

precisely what type of prior art they were hoping to find and what reward they were willing to pay. BountyQuest posted this information on their website,²³⁶ Internet users around the world visited the site and submitted documents relating to the prior art requests. The site worked for a number of postings and people did collect rewards.²³⁷ However, BountyQuest was not able to run itself as a profitable business and it is now defunct.²³⁸

[¶72] This Note now poses the following question: Could a website such as BountyQuest succeed in a context other than as the centerpiece of a “dot-com” business? More specifically, what if a governmental entity such as the PTO sustained a website that enabled members of the public to receive rewards for locating prior art that could invalidate business method and software patents?

²³⁶ *Id.*

²³⁷ Four out of nineteen of BountyQuest’s first bounties were rewarded. Each of the collectors had worked in the targeted technology, and each collected \$10,000. *See* Felton, *supra* note 230.

The following presents an illuminating illustration of BountyQuest’s ability to uncover prior art: One of the most controversial business method patents that the PTO has ever issued was on Amazon.com’s “One-click” purchasing program. Interestingly, Amazon.com’s founder, Jeff Bezos, provided funding to help start BountyQuest. Nevertheless, he maintained that his One-Click patent would be able to withstand any prior art challenges. As a test case, on the first day that BountyQuest was launched, Tim O’Reilly offered a \$10,000 reward to anyone who could provide evidence demonstrating that certain elements in the One-Click patent were invented before the date that Mr. Bezos filed the One-Click patent. *See* BountyQuest Q&A, *supra* note 235. In reviewing the results of this bounty posting, Mr. Cella stated:

We were astonished by the breadth and quality of the prior-art evidence that we received for the One-Click posting... Nobody submitted an exact match to win the bounty, but the cash reward attracted 30 submissions that are relevant to the patent. These may have a bearing on Amazon’s ability to enforce its patent, including evidence that was not discovered by the PTO.

Id.

Mr. O’Reilly also commented on the results of the bounty posting several years later: Some months after we’d awarded the bounty, splitting it three ways for prior art that wasn’t completely on the money, someone sent in a killer piece of prior art. I still have it on my bookshelf, in the odd event that Amazon loses its senses and sues anyone else over 1-click. (As you may recall, Amazon and B&N settled the suit, and Jeff Bezos seems to have eschewed offensive use of patents for now, partly as a result of the awakening that he had after the Net protest I led back in 2000).

OREILLY, *Ask Tim* (October 2003), at http://www.oreilly.com/pub/a/oreilly/ask_tim/2003/bountyquest_1003.html [hereinafter O’Reilly Q&A].

²³⁸ *See* O’Reilly Q&A, *supra* note 235.

[¶73] BountyQuest proved its effectiveness in uncovering evidence missed or overlooked by the PTO. Perhaps the public at large, through a PTO website modeled upon BountyQuest, could serve a vital and indispensable role assisting the PTO in its massive efforts to locate prior art that can invalidate questionable patents.

C. The Case for The PTO’s Implementation of a Site in the Mode of BountyQuest to Assist It in Locating Prior Art Relating to Business Method and Software Inventions

[¶74] Considering the role that the public has proven that it can perform in locating evidence overlooked or missed by the PTO, this Note posits that the time has come for the PTO to embrace the spirit of “openness” that has pervaded other intellectual disciplines by incentivizing the public at large - not just potential or actual targets of infringement suits - to help it locate valid prior art in the business method and software fields. Additionally, this Note posits that the public should also be incentivized as much as possible to locate prior art that can invalidate patents in the time period *before* these patents are finally issued, not just in the post-grant phase.^{239, 240}

²³⁹ Pursuant to 35 U.S.C. §122(b)(1), patents can be published to the world by the PTO 18 months after they are filed, even if they have not been declared valid by the PTO. Thus, if the PTO has not approved a patent after this 18 month period has elapsed - perhaps due to the PTO’s rejections of the claims in a patent and the subsequent amendments of those claims by the prospective patentee, the public can still view the patent application. *See* CHISUM, *supra* note 22, at 110.

In situations when 18 months have elapsed after the filing of a patent, U.S. patent law currently allows members of the public to introduce evidence to the PTO – such as prior art in the form of printed publications – to challenge the validity of patents. However, there are limitations on actions the public may take.

First, 35 U.S.C. §122(c) requires the PTO to establish procedures so that no protests or other challenges to the grant of a patent can be initiated by the public after publication of the application without the express written consent of the applicant. *See* CHISUM, *supra* note 22, at 112. However, 37 CFR §1.99(a) does allow the public to send to the PTO patents or publications that may be relevant to a pending published application. *See id.* Other statutory limitations exist regarding the public’s ability to challenge the validity of published pending patents. For example, the public’s role ends once the information sent in is entered into the patent’s application pursuant to 37 CFR §1.99(a). The public may not provide the PTO with any explanations of the patents or publications sent in, and they may not submit any other information to the PTO. Additionally, public submissions cannot include more than ten total references (patents or publications) and cannot include documents other than patents or publications such as affidavits or

declarations. Moreover, any submissions to the PTO under 37 CFR §1.99(a) must ordinarily be filed within two months from the date of publication of the application to become part of the patent's application file; otherwise the submissions will be considered untimely and will be disregarded. 37 CFR §1.99(a) (2001).

Second, prospective patentees currently have a way of preventing their patents from being published by the PTO before they are issued. Prospective patentees can have their patent applications kept secret by the PTO at all times before their patents are issued by indicating that they only intend to file for patent protection on their inventions in the U.S., and no other country. *See* CHISUM, *supra* note 22. In situations when the public at large does not know about the contents of pending patents, they presently cannot submit patents and prior publications to the PTO to challenge their validity pursuant to 37 CFR §1.99(a).

This Note contends that the public should be allowed to meaningfully participate in pre-grant reviews of business method and software patents, regardless of whether the entire text of those patents are published and/or whether their claims are rejected. This Note further contends that all members of the public, not just potential or actual targets of specific infringement suits, should be *incentivized* as much as possible to participate in pre-grant reviews of business method and software patents.

²⁴⁰ In January 2006, the PTO announced that it planned to cooperate with the open-source community on three initiatives to improve the quality of software patents that it would issue in the future. John Doll, the Commissioner for Patents at the PTO, explained the PTO's rationale for its decision: "Collaboration between the Patent Office and the open-source community builds on the momentum of the open-source model. There is powerful logic in tapping vast public resources to address the growing public interest in patent quality." *See* CNET, Martin LaMonica, *IBM taps open source to improve patent quality* (Jan. 9, 2006), at http://news.com.com/IBM+taps+open+source+to+improve+patent+quality/2100-7344_3-6024554.html. Through the first initiative, the "Open Patent Review" initiative, members of the public can register on the PTO's website to receive email alerts about newly published patents matching search criteria that they provided to the PTO. After receiving email alerts, the public can then bring prior art to the PTO's attention that their examiners overlooked or missed. *See* NYLS, *The Peer to Patent Project: Community of Peer Review of Patents*, at <http://dotank.nyls.edu/communitypatent/> (last visited Apr. 30, 2006). Through the second initiative, "The Open Source Software as Prior Art" project, computer programmers will be able to submit open-source software code to the PTO, which can serve as prior art to potentially invalidate future patent applications. *See* OSDL, *Help The USPTO Use Open Source As Prior Art*, at <http://developer.osdl.org/dev/priorart/> (last visited Apr. 30, 2006). This project is being developed by a consortium of well-known technology companies including IBM, Novell, and Red Hat. *See* John Markoff, *U.S. Office Joins an Effort to Improve Software Patents*, N.Y. TIMES (Jan. 10, 2006), available at <http://www.nytimes.com/2006/01/10/technology/10blue.html?ex=1294549200&en=16a2b79423f23275&ei=5090&partner=rssuserland&emc=rss>. Through the third initiative, the "Patent Quality Index", members of the public can rank the quality of issued patents (or patent applications.) *See* UPENN, *The Patent Quality Index*, at <http://www.law.upenn.edu/blogs/polk/pqi/index.html> (last visited Apr. 30, 2006). This initiative is more subjective than the other two and would largely serve as a tool to assist patent applicants in drafting their applications more effectively. *See* Markoff, *supra*.

The pre-grant "bounty" patent review system (hereinafter the "PTO prior-art bounty system") proposed in this Note can be distinguished from the PTO's three recently approved initiatives in the following significant manner: The PTO, by offering bounties to members of the public who successfully find prior art that was overlooked or missed by its examiners, would be *incentivizing* all members of the public, including all those who might never have participated in the patent review process, to assist it in finding relevant prior art. None of the PTO's recently approved initiatives contain a direct financial incentive for members of the public to participate in the patent review process. *See discussion infra* Part VII.E (discussing the value of incentivizing experts and non-experts in different industries, along with librarians and others with access to troves of valuable information outside the U.S., to participate in the patent review process). Without a direct financial incentive, many people who are capable of retrieving information or who actually possess information that can invalidate pending patents may altogether refrain from assisting the PTO.

Moreover, the PTO's three initiatives represent improvements to the status quo; they are not drastic alternatives. To illustrate, the "Open Patent Review" initiative can largely be seen as an adjunct to 37 CFR §1.99(a). *See supra* note 242 and accompanying text (discussing 37 CFR §1.99(a)). Under both 37 CFR §1.99(a) and this initiative, members of the public can submit prior art to the PTO to challenge the

[¶75] The following is a hypothetical embodiment of the solution proposed by this Note: The PTO can develop its own website in the mode of BountyQuest for business method and software inventions. After the PTO approves a business method or software patent, it can then post several ads on the site relating to one or more claims in the patent offering fixed dollar rewards (or even tax breaks) to members of the general public if they can locate prior art that would invalidate any of those claims *before* the patent is issued.²⁴¹ The ads can run for a period of three to six months. After that time, if the public fails to locate prior art that invalidates any claims in the patent, the patent can then be issued.

[¶76] A patent “pre-grant” review system such as the one proposed here could serve a crucial role in preventing the PTO from issuing invalid patents in the future. The PTO itself would incidentally benefit from such a system as well. For example, any prior art sent in by the public could identify new sources of such evidence to the PTO. Further,

validity of patents that have been published but not issued. The Open Patent Review initiative, to some extent, merely serves to automate the process whereby members of the public can find out about published patents of interest in the first place - by emailing them about these patents instead of forcing them to look up the patents on their own. Further, under both 37 CFR §1.99(a) and this initiative, the public may still not be able to make any prior art challenges to unpublished patent applications. *See, e.g. supra* note 242 and accompanying text (discussing the fact that prospective patentees can have their patent applications kept secret by the PTO at all times before their patents are issued by indicating that they only intend to file for patent protection on their inventions in the U.S.). However, the Open Patent Review initiative may also allow members of the public to provide feedback or comments to the PTO about the prior art they submit that challenges the novelty of pending patents, so this would represent one way in which the initiative can be distinguished from 37 CFR §1.99(a).

The second initiative, the “Open Source Software as Prior Art” project, only deals with open-source software code. It does not deal with non-open source software code and it does not deal with business method inventions - as the PTO prior-art bounty system proposed herein does. Finally, the third initiative largely addresses the “quality” of pending patents. In contrast, the prior-art bounty system proposed herein addresses the novelty of pending patents and not their quality.

In conclusion, the main features of the first initiative (such as recently published patent emailing robots and the potential opportunity for comments or feedback about submitted prior art), could serve as individual “bonus” features in a PTO prior-art bounty system. The second and third initiatives could also co-exist seamlessly with a PTO prior-art bounty system. Lastly, the degree of public excitement surrounding the PTO’s final implementation of each of these initiatives would pale in comparison to the potential buzz and more active worldwide involvement in the patent review process that the provision of bounties for the discovery of prior art overlooked or missed by the PTO’s examiners would engender.

the PTO could enter all of the prior art submitted by the public into its own internal databases (even if the evidence was not precisely “on-target” for a particular posting) thereby leading its own examiners to conduct more efficient research on the validity of other related patents in the future.

D. An Analysis of One Potential Public Concern Regarding the PTOs Implementation of a Website in the Mode of BountyQuest to Assist It in Uncovering Prior Art that Can Invalidate Pending Business Method and Software Patents

[¶77] A major concern that may be raised regarding a PTO website that calls upon the public to help it discover prior art that can invalidate pending business method and software patents is the following: Should a governmental agency such as the PTO be offering monetary rewards or bounties to the public for uncovering such prior art?

[¶78] It is worth viewing the bounty proposal advanced here in a broader context. The suggestion that the U.S. government should offer bounties to reward the public for assisting it in finding or uncovering information in one or more areas under its jurisdiction is far from novel. In fact, the U.S. government currently offers numerous bounties in a host of areas. Most notably, in the present-day War on Terror, the U.S. Government, through the Department of State's Bureau of Diplomatic Security, has been offering bounties of up to \$25 million to anyone who can provide information leading to the arrest or conviction of Osama bin Laden and other key al-Qaeda leaders.²⁴¹ On a smaller scale, other bounties offered by the U.S. Government include the following: Bounties of up to \$5 million offered by the U.S. Department of State to anyone who can

²⁴¹ The money for the rewards (i.e. “bounties”) could come from slightly increased filing fees on software or business method patents.

provide information to help it stem drug trafficking;²⁴³ bounties to informants who report tax cheats to the Internal Revenue Service (“IRS”) of up to 15% of the total recovered by the IRS;²⁴⁴ and bounties to “whistleblowers” under the the False Claims Act,²⁴⁵ who initiate *qui tam* lawsuits against individuals or other entities who commit fraud against the U.S. Government, such as Medicare or defense fraud, ranging from 15 to 30 percent of the amount recovered through litigation.²⁴⁶ State and local governments also routinely provide bounties to members of the public for providing information leading to the arrest or recapture of criminals,²⁴⁷ tips relating to illegal trash or toxic dumping,²⁴⁸ and even information of special interest such as the identities of individuals responsible for killing bald eagles or other endangered animals.²⁴⁹

[¶79] In each of the above situations, a concerned governmental body offered one or more bounties because it recognized that members of the public outside of its employ had access to the information that it wanted, and it sought that information with some

²⁴² See, e.g. REWARDS FOR JUSTICE, *Mission of the Rewards Program*, at http://www.rewardsforjustice.net/english/rewards_program/index.cfm?page=Mission (last visited Apr. 24, 2006).

²⁴³ See, e.g., U.S. DEPARTMENT OF STATE, *Narcotics Reward Program*, at <http://www.state.gov/p/inl/narc/rewards/39410.htm> (last visited Apr. 24, 2006).

²⁴⁴ IRC §7623.

²⁴⁵ 31 U.S.C. §§ 3729-33.

²⁴⁶ See *id.*; John R. Phillips & Mary Louise Cohen, *How to avoid liability under the False Claims Act*, PHILLIPS & COHEN LLP, at <http://www.phillipsandcohen.com/CM/Articles/ama.asp> (last visited Apr. 24, 2006). Under the False Claims Act, whistleblowers can receive a bounty ranging from 15 to 30 percent of the amount recovered through litigation by way of either a favorable judgment or a settlement.

²⁴⁷ See, e.g., TENNESSEE BUREAU OF INVESTIGATION, *TBI Most Wanted*, at http://www.tbi.state.tn.us/Fugitives/TBI_MWD4.HTM (last visited Apr. 24, 2006); THE CHARTER TOWNSHIP OF WATERFORD, MICHIGAN, *Reward Programs* (Apr. 11, 2006), at <http://www.twp.waterford.mi.us/police/Reward.htm>.

²⁴⁸ See, e.g., MSNBC, *Rewards Offered To Curb Trash Dumping* (Mar. 30, 2006), at <http://www.msnbc.msn.com/id/12084677/from/RL.1> [hereinafter Curb Trash].

²⁴⁹ See, e.g., KENTUCKY FISH AND WILDLIFE, *Reward Offered for Shooting of Bald Eagle in Hopkins County* (Jan. 20, 2006), at <http://fw.ky.gov/012006.asp?lid=1328&NavPath=C466>.

degree of urgency. Additionally, in many situations, the governing body recognized that the bounty offer represented a highly economical solution to the problem at hand.²⁵⁰

[¶80] The PTO is in a similar position to many of these governmental agencies in that it must locate and use information in the public domain, under considerable time pressure, to fulfill its statutory duties.²⁵¹ Even though PTO examiners have immediate access to an unprecedented wealth of information at their desks to conduct prior art searches,²⁵² they occasionally overlook or fail to locate publicly available information that can invalidate pending patents.²⁵³ However, unlike many other governmental agencies, the PTO does not offer bounties to the public for providing it with information that it is missing and can help it fulfill its duties. Perhaps this is because the PTO has several legal “safety nets,” in the form of reexamination and federal court proceedings, through which private parties outside of the PTO can largely bear the costs of rectifying (or attempting to rectify) its mistakes at a later time. Most other governmental agencies have no such safety nets.

[¶81] Under the present patent regime in the U.S., the potential or actual targets of infringement suits and/or related third parties regularly incur staggering legal costs, often amounting to tens of millions of dollars, in their attempts to invalidate patents that

²⁵⁰ See, e.g. Curb Trash, *supra* note 248 (explaining that the county spends approximately \$500,000 each picking up trash left by people alongside its roads, and that the program can reduce some of this spending by preventing trash dumping in the first place).

²⁵¹ See Kevin Maney, *Examiners can't keep up with patent applications*, USA TODAY, (Sep. 20, 2005), at http://www.usatoday.com/tech/columnist/kevinmaney/2005-09-20-patent-office_x.htm (explaining that the PTO's backlog in reviewing patent applications has been growing in recent years, owing to an increase in the number of patent applications relative to the number of PTO examiners and the hours that they currently devote to reviewing the validity of patents. To illustrate, from 2004 to 2005, 100,000 more patent applications were submitted than were approved.)

²⁵² See Q. Todd Dickinson, *Reconciling Research and the Patent System*, ISSUES IN SCIENCE AND TECHNOLOGY, (Summer 2000), at <http://www.issues.org/16.4/index.html>.

²⁵³ See, e.g., Squeo, *supra* note 100, at A8.

frequently should never have been granted.²⁵⁴ Considering that half of the litigated patents in federal court eventually get invalidated,²⁵⁵ the present system essentially requires members of the public to bear enormous costs to correct mistakes originally made by the PTO in issuing invalid patents. Perhaps the financial burden to correct the PTO's mistakes should not rest entirely or largely on parties that did not even commit these mistakes in the first place. This Note therefore contends that the U.S. patent system should place a much stronger focus on rectifying these mistakes *before* they are promulgated, not just afterward. The bounty system proposed herein would shift some of the financial burden for catching the PTO's mistakes away from many innocent private parties (who must pay to participate in the PTO's legal safety nets) back onto the PTO itself, through a revised pre-grant review process.²⁵⁶

[¶82] Further, considering the fact that *many other* governmental agencies have employed bounties to entice members of the public to come forward with relevant and desirable information that they recognized might be otherwise unobtainable, then perhaps the PTO, with its enormous information needs, severe time constraints, and track record of overlooking or failing to find relevant prior art, could similarly use bounties to incentivize the public to assist it in finding information in the public domain that its examiners might overlook.

[¶83] Significantly, whenever the PTO issues patents that should have never issued in the first place – i.e. when prior art that could have invalidated these patents exists in the public domain but PTO examiners failed to find it - the consequences can

²⁵⁴ See *supra* note 16 and accompanying text.

²⁵⁵ See Walker, *supra* note 19.

weigh heavily upon U.S. industries.²⁵⁷ On September 14, 2005, *The Wall Street Journal* reported that greater numbers of law firms are now taking patent infringement cases on a contingency basis, and further, that these infringement suits, sometimes involving questionable patents, can financially cripple many individuals and companies.²⁵⁸

[¶84] Moreover, once invalid patents are issued, the prospect of long and expensive federal infringement suits often incentivizes parties to settle rather than attempt to invalidate them.²⁵⁹ For example, in eSpeed's infringement suits, all of the U.S.'s major commodities exchanges and some of the global exchanges eventually settled with eSpeed instead of litigating against eSpeed to the hilt.²⁶⁰ Numerous questionable patents have therefore remained in effect throughout U.S. history, even though many of them might have been invalidated if the federal trials regarding their validity had reached completion.²⁶¹ Some of these patents have been wielded against other companies in subsequent infringement suits, further dampening industry-wide competitiveness and innovation.²⁶² A PTO open-source website in the mode of BountyQuest would allow the

²⁵⁶ In a sense, the proposed bounty system would serve as a supplemental pre-grant safety net that could turn out to be far less costly and more efficient in many ways than the post-grant legal safety nets that are in place today.

²⁵⁷ See FTC Report, *supra* note 20, at 8 (“Questionable Patents Are a Significant Competitive Concern and Can Harm Innovation... Questionable Patents Can Deter or Raise the Costs of Innovation”); Garfinkel, *supra* note 20 (explaining that the high costs of patent litigation has put many companies out of business, and further, that these costs frequently incentivize small businesses and large companies to settle infringement suits and enter into unfavorable licensing schemes instead of contesting the validity of questionable patents in federal court.). See also *infra* Part V.D. (noting that even the U.S. Government could have been affected by an infringement suit brought by eSpeed).

²⁵⁸ See William M. Bulkeley, *Aggressive Patent Litigants Pose Growing Threat to Big Business*, WALL ST. J., Sept. 14, 2005, at A1.

²⁵⁹ See *infra* notes 20, 247 and accompanying text.

²⁶⁰ See discussion *infra* Part V.B-C.

²⁶¹ In a well-known example of a settlement agreement leaving a controversial business method patent intact today, Barnes & Noble and Amazon.com reached an out of court settlement agreement regarding Amazon.com's “One click” internet purchasing system. Because a final ruling on the validity of this patent was never issued, the patent still remains as a deterrent to other parties who may consider adopting a similar purchasing system. See, e.g., JAMES & WELLS, *Amazon Settles With Barnes & Noble* (Apr. 4, 2003), at http://www.jaws.co.nz/page.cfm?id=17&news_id=64.

²⁶² See *id.*

public to directly assist the PTO in finding prior art that could invalidate questionable overbroad patents before they are ever issued.

[¶85] From the perspective of the financial exchanges and other bedrocks of major U.S. industries, the implementation of an effective pre-grant patent challenge system in the mode of BountyQuest, in conjunction with a new post-grant review system, would incentivize them to become more proactive in challenging questionable business method and software patents. Considering the unique position that the exchanges occupy, they should be encouraged to be as proactive as possible in preemptively challenging questionable patents. Moreover, if their preemptive challenges are successful, the entire trading public could benefit overall in the form of lower and more stable trading fees over time.²⁶³

[¶86] In a broader sense, this Note posits that the U.S. patent system should abide by the creed uttered by the Greek physician Galen that has also guided systems of medical practice around the world throughout history: *primum non nocere*, which translates as “first do no harm.”²⁶⁴ The federal grant of monopolistic power, through patents, is unique in U.S. law, and it should come only after claimed inventions successfully pass through the most careful and rigorous possible screening. The open-source paradigm, as demonstrated by BountyQuest, has already proven effective in finding prior art missed or overlooked by the PTO.²⁶⁵ As such, the PTO should consider adopting aspects of such as system as a precautionary measure against the issuance of invalid software or business method patents in the future.

²⁶³ Costs that the exchanges have to incur in litigating patent infringement suits are passed onto the trading public in the form of higher trading fees.

²⁶⁴ See, e.g. WIKIPEDIA, *Primum non nocere* (Aug. 27, 2005), at http://en.wikipedia.org/wiki/Primum_non_noceret.

E. The Importance of Incentivizing Experts *and* Non-Experts To Regularly Participate in an Open-Source PTO Patent Pre-Grant Review System

[¶87] Realistically, in the absence of monetary rewards, many individuals or businesses who are equipped to find prior art to invalidate pending patents in their respective business and software fields might pay little or no attention to the contents of patents that are about to be issued. However, it is almost axiomatic that when money becomes involved, patterns of behavior can change dramatically. The PTO, by offering monetary rewards (i.e. prior art “bounties”) would almost certainly incentivize more industry professionals and businesses to participate in a patent pre-grant open-source review system. Specifically, internet search specialists, librarians around the world, and all types of software and financial professionals would be more willing to regularly check a PTO bounty website to see if they can satisfy any prior art requests that fall within their areas of expertise if they were offered monetary rewards. If far greater numbers of people become involved in a patent pre-grant review process, from neophytes to experts in various fields, the likelihood that prior art will be found that can strike down questionable patents on the verge of being issued might increase as well. It is worth noting that the first collectors of bounties through BountyQuest, while it was operational, were not recognized experts in their fields; they were ordinary individuals who worked in the industries in which the patents were sought.²⁶⁵ It is therefore probable that if the PTO implements a pre-grant open source review site similar to BountyQuest, many future

²⁶⁵ See *infra* note 240 and accompanying text.

²⁶⁶ The first four people to collect bounties through BountyQuest were not industry experts. For example, one of the first bounty collectors was Perry Leopold, a 1970s psychedelic musician who founded an organization dedicated to serving independent musicians. In 1987, he co-authored a paper for a conference

bounty collectors/finders of prior art will be ordinary professionals (e.g. “Average Joes”) and not experts renowned in their fields.

[¶88] Librarians as well as those outside the U.S. can also play a crucial role in finding prior art that can invalidate pending patents. To illustrate, in the most publicized patent infringement dispute in modern U.S. history - the suit brought by NTP Inc. (NTP) against Research in Motion Ltd. (RIM) in which NTP alleged that RIM’s BlackBerry popular wireless email messaging system had been infringing upon its patents – memos were located in a Norwegian university library that may represent prior art to invalidate one or more of NTP’s patents.²⁶⁷ This finding was reminiscent of what took place in several other celebrated cases in U.S. patent history in which acceptable prior art was found in libraries and science journals in other countries.²⁶⁸ Since history has repeatedly shown that a great deal of the prior art that can serve to invalidate pending patents may be located in books and information warehouses such as libraries outside the U.S. that are not readily accessible by PTO examiners, parties with ready access to these troves of information should be incentivized to participate in the pre-grant patent review process as much as possible. A PTO website in the mode of BountyQuest would greatly contribute toward this goal.²⁶⁹

on downloadable digital audio. That paper met the requirements of a bounty posting and could have represented prior art to invalidate the questionable patent at issue. *See Felton, supra* note 230.

²⁶⁷ *See Squeo, supra* note 100, at A8. *See also infra* note 20 and accompanying text (discussing the historical chronology of the RIM/NTP patent infringement suit and the fact that the PTO decided to reexamine eight of NTP’s wireless email patents). While the PTO has issued a final decision invalidating at least one of NTP’s patents, its rulings in reexaminations are appealable and the patents have remained in effect.

²⁶⁸ *See e.g. infra* note 106 and accompanying text (explaining that in *In re Hall*, 781 F.2d 897 (Fed. Cir. 1986), a doctoral thesis that was stored and cataloged in a library in Germany qualified as prior art to invalidate a patent).

²⁶⁹ Currently, lawyers have to scramble around the U.S. or the world to find prior art like the “Norway memos” that can help determine the outcome of multimillion dollar patent disputes. *See Squeo, supra* note 100, at A1.

F. Other Incidental Benefits That Could Accrue to the Public if the PTO Implements a Patent Pre-Grant Review Website in the Mode of BountyQuest

[¶89] Under a vibrant and effective pre-grant review system, many smaller companies that might have previously been targeted in patent infringement suits with questionable patents could escape being sued altogether. These companies would be able to devote their full resources to business concerns rather than paying lawyers to litigate infringement suits on their behalves in federal court.²⁷⁰ In the big picture, the economic benefits that could accrue to these companies as a result of not having to deal with unnecessary or vexatious infringement suits could be tremendous.

[¶90] One additional end result of a pre-grant BountyQuest-type patent review system could be that inventors of business method and software patents might perform extra diligence and file only those applications on inventions that they truly believe meet the statutory requirements of patentability. As a consequence, the likelihood that the PTO would ultimately issue mostly valid business method or software patents might correspondingly increase as well.

CONCLUSION

[¶91] The patent infringement lawsuits that have been waged against the global financial exchanges and related third parties in the U.S. exemplify why there is a critical

Hypothetically, if librarians or researchers in Norway: (a) were incentivized to regularly check a PTO pre-grant patent review website (or requested regular email alerts from the PTO about recently published patents of interest), and (b) viewed the PTO's bounty postings/requests for prior art relating to some or all of the claims in NTP's patents before those patents issued, the librarians or researchers could have sent the "Norway memos" to the PTO's attention. If PTO examiners then decided that the contents of the Norway memos constituted valid prior art against the claims in NTP's patents, the PTO would have refused to issue NTP's patents. Consequently, the dispute between NTP and RIM that could have ultimately affected the services provided to all BlackBerry users would never have arisen.

need for reforms in the present system of patent examination. In each of these suits, prior art that could have invalidated the patents was readily available in the public domain, yet the PTO's examiners failed to evaluate the prior art before they issued the patents.²⁷¹ Moreover, the current system of patent reexamination contains so many drawbacks and negative consequences in the event of failed challenges that few actual or potential targets of infringement suits employ it today.²⁷² As a result, the targets of infringement lawsuits have had no valid recourse but to spend vast sums of money, often in excess of \$5 million, to contest the validity of patents in federal court.²⁷³ Further, nearly half of these patents have been invalidated when they were litigated to the hilt.²⁷⁴ So essentially, private entities have routinely paid millions of dollars to correct mistakes that the PTO should never have made in the first place.

[¶92] Congress is currently considering legislation that would create a new post-grant patent review system.²⁷⁵ Such a system would provide actual or potential targets of infringement suits with an attractive and economical forum outside of federal court to contest patents. However, many well-capitalized parties capable of launching effective patent validity challenges may still eschew this new system entirely, preferring to litigate exclusively in federal court to get their "fairest possible shake" by taking full advantage of the federal procedural and evidentiary mechanisms that will not be offered in alternative patent adjudicative forums.²⁷⁶ Thus, potential or actual targets of infringement

²⁷⁰ See, e.g., CONLEY ROSE, *supra* note 17.

²⁷¹ See, e.g., discussion *infra* Part V.A-E. In the AMEX/Mopex suit, a financial application stored in the SEC's Reference Room served as prior art to invalidate Mopex's '685 patent in federal court.

²⁷² See Toupin testimony, *supra* note 214 (noting that as of June 2004, less than 50 *inter partes* reexamination challenges have been made to issued patents).

²⁷³ See *infra* note 20 and accompanying text.

²⁷⁴ See Walker, *supra* note 19.

²⁷⁵ See *infra* note 17 and accompanying text.

²⁷⁶ See, e.g., discussion *infra* Part VI.D

suits may still wind up spending extravagant sums of money in litigation fees to correct mistakes made by the PTO.²⁷⁷

[¶93] A complimentary solution involves enabling the public to help the PTO ferret out omissions or mistakes *before* invalid patents are promulgated, not just afterward. Patents provide for the grant of monopolistic power and should therefore be issued only with the greatest possible circumspection. In fields such as business methods and computer software, it is especially difficult for the PTO to ascertain the novelty of inventions because relatively little of the prior art and evidence of public use in these fields has been published.²⁷⁸ As a result, the PTO should embrace the spirit of “openness” that has pervaded other intellectual disciplines such as computer science and cryptography, by incentivizing the public at large to assist it in locating prior art *before* business method or software patents are issued.

[¶94] Moreover, the public at large – not just the potential or actual targets of infringement suits such as the financial exchanges – can and should be incentivized to locate prior art that can invalidate questionable business method and software patents. Society itself, to enhance overall competitiveness and innovation, has a vested interest in seeing that invalid patents never get issued²⁷⁹ In consideration of the difficulties routinely faced by the PTO in locating prior art that can invalidate questionable business method and software patents,²⁸⁰ the PTO should consider rewarding those who successfully help it at this task. The PTO would benefit reciprocally from this approach as well, because

²⁷⁷ *See id.*

²⁷⁸ *See, e.g.,* Kushan testimony, *supra* note 177 and accompanying text (noting the widely held belief that “a substantial amount of ‘prior art’ in the business method field is not captured in traditionally printed publications or patents”).

²⁷⁹ *See infra* notes 265 and accompanying text.

²⁸⁰ *See, e.g., infra* notes 232-35 and accompanying text.

their own examiners and internal systems would then become exposed to new sources of prior art that can then be used in their research on other related patents in the future.

[¶95] Specifically, the PTO should embrace a *primum non nocere* (“first do no harm”) approach to business method and software patents by adopting an open source system similar to that first developed by BountyQuest to assist it in locating prior art that can invalidate patents *before* they are issued.²⁸¹ While a system such as BountyQuest may not have been a commercial success in the private industry, it proved successful in locating prior art overlooked or missed by PTO examiners.²⁸² Such a system, if implemented by the PTO, could potentially save private parties millions of dollars in the long run by frequently obviating the need to litigate business method and software patents in federal court. Furthermore, it would make the patents that eventually do issue in these fields far more worthy of monopolistic protection.

²⁸¹ See, e.g. discussion *infra* Part VII.B (explaining how BountyQuest proved effective in locating prior art).

²⁸² See *id.*