

Patent Alienability and Its Discontents

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* © 2014 Hannibal Travis. Professor of Law, Florida International University; J.D. Harvard, 1999. In the past, the author has advised law firms representing patent licensors and patent licensees, as well as some of their clients, primarily in California. The title of this Article evokes the title of a study of patenting: JOSH LERNER & ADAM JAFFE, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004). Some of the controversies surrounding patent licensing also remind one of Sigmund Freud's observation: "The impression forces itself upon one that men measure by false standards, that everyone seeks power, success, riches for himself and admires others who attain them" SIGMUND FREUD, CIVILIZATION AND ITS DISCONTENTS 7 (Joan Riviere trans., 1930).

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I. INTRODUCTION

In 2013, the United States House of Representatives passed the Innovation Act, H.R. 3309.¹ Allegedly aimed at patent extortion by patent assertion entities (PAEs), it would mandate that the losing party in a patent infringement suit pay attorney’s fees to the prevailing party absent exceptional circumstances or substantial justification for the losing party’s position.² It would raise pleading standards to require allegations of infringement claim-by-claim and the identification of infringing products or processes by name and type of infringement (literal or nonliteral).³ On June 4, 2013, President Obama issued a series of executive orders, including “transparency” measures, aimed at reducing alleged patent litigation abuses.⁴ On December 11, 2013, the Department of Commerce appointed a key advocate of reducing patent rights, Google’s former deputy general counsel Michelle Lee, as interim head of the U.S. Patent & Trademark Office (USPTO).⁵ The appointment signaled the possibility that the USPTO would wipe out Internet-related patents⁶ and there are indications that it has arguably already begun to do

1. See Sam Graves, *Why Isn’t the Senate Taking Up Innovation Bill?*, CNBC (Aug. 11, 2014), <http://www.cnbc.com/id/101910973>; Ada Meloy, *Patent Troll Legislation Could Hinder University Research and Innovation*, HIGHER ED TODAY (Apr. 28, 2014), <http://higheredtoday.org/2014/04/28/patent-troll-legislation-could-hinder-university-research-and-innovation/>.

2. *Summary of H.R. 3309, Innovation Act and AIPLA Positions as of 11/15/13*, AM. INTELLECTUAL PROP. LAW ASS’N (Nov. 15, 2013), <http://admin.aipla.org/advocacy/congress/113C/Documents/Innovation%20Act%20Chart%2011-15-13.pdf>.

3. See *id.*

4. See *id.*; Exec. Office of the President, *Patent Assertion and U.S. Innovation*, WHITE HOUSE (June 2013), http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf.

5. Tony Dutra, *Former Google IP Counsel Michelle Lee To Head PTO as Director Search Continues*, BLOOMBERG BNA (Dec. 13, 2013), <http://www.bna.com/former-google-ip-counsel-michelle-lee-to-head-ptu-as-director-search-continues>. In October 2014, President Obama nominated Ms. Lee to become the Director of the U.S. Patent and Trademark Office. See Michael Loney, *Lee Nomination as USPTO Director Confirmed*, MANAGING IP (Oct. 17, 2014), <http://www.managingip.com/Article/3391280/Lee-nomination-as-USPTO-director-confirmed.html>.

6. The year prior to her appointment, Ms. Lee had coauthored an amicus brief by Google Inc., to the United States Supreme Court, urging it to disallow patents that go beyond a “particular object or specific instance,” because allowing patents based on the innovative computer programming needed to translate existing abstract ideas to Internet or e-commerce applications would impose costs on corporations using the innovations that would be larger than the profits that the patent owners would earn. Brief of Google Inc. and Verizon Communications Inc. as Amici Curiae in Support of Petitioner at 5-7, 10-11, *WildTangent, Inc. v. Ultramercial, LLC*, 132 S. Ct. 2431 (2012) (No. 11-962). Most inventors active in the computer or Internet space do not claim a “particular object” as their invention. See, e.g., *infra* Part III.

this, by using broad readings of *KSR International Co. v. Teleflex Inc.* and *Alice Corp. Pty. v. CLS Bank International*.⁷

The basis for these moves was a plea to restrict the marketability of patent rights and to make it more difficult for inventors to be compensated for their contributions to society. Individual inventors, small businesses, and universities frequently prefer to license their patents to PAEs, also known as nonpracticing entities (NPEs).⁸ Megacorporations and their trade associations allege that PAEs and NPEs impose more costs than benefits and divert resources away from innovation and employment and towards legal fees.⁹ On the other hand, the former U.S. Solicitor General, many patent owners and patent law practitioners, and a number of scholars of law and economics see PAEs and NPEs as institutions that help inventors alienate patents in exchange for money or stock.¹⁰

7. See Dennis Crouch, *New Section 101 Decisions: Patents Invalid*, PATENTLY-O (Sept. 4, 2014), <http://patentlyo.com/patent/2014/09/section-decisions-invalid.html> (citing *Ex parte* Cote, No. 2012-010730 (P.T.A.B. Jan. 12, 2014); *Ex parte* Jung, No. 2012-009645 (P.T.A.B. Aug. 27, 2014); *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014)); Dennis Crouch, *What To Do About All These Invalid Patents?*, PATENTLY-O (Aug. 28, 2014), <http://patentlyo.com/patent/2014/08/these-invalid-patents.html>. Crouch argues that under modified rules of Patent and Trademark Office, “hundreds of thousands of patent claims” could be deemed to “lack eligible subject matter under the patent common law and 35 U.S.C. § 101; [to be] indefinite under 35 U.S.C. § 112; or [to be] obvious under 35 U.S.C. § 103.” *Id.* (citing, inter alia, *Alice*, 134 S. Ct. 2347; *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007)).

8. *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393 (2006) (“[S]ome patent holders, such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves.”). An NPE is sometimes contrasted with a PAE on the basis that the NPE may have developed the technology but transferred it to the manufacturing or marketing entity, while a PAE may have received patent rights to a technology it did not develop. See, e.g., *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*, FED. TRADE COMM’N 8 n.5 (2011), <http://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patent-report.pdf>. A PAE would also be an NPE, however. The minimum sufficient condition for classification as an NPE is seeking to prosecute patent litigation while failing to simultaneously “create or sell a product that is vulnerable to infringement countersuit by the company against which the patent is being enforced.” *To Promote Innovation: The Proper Balance of Competition and Patent Law*, FED. TRADE COMM’N 38 (2003), <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>.

9. See, e.g., Letter from Victoria A. Espinel, President & CEO, PoSA/The Software Alliance, to the Hon. Robert W. Goodlatte, Chairman, Comm. on the Judiciary, PAT. PROGRESS (Dec. 3, 2013), http://www.patentprogress.org/wp-content/uploads/2013/12/12032013HR3309Goodlatte_HouseFloor.pdf; *Patents*, COMPUTER & COMM’NS IND. ASS’N, <http://www.cciinet.org/issues/patents/> (last updated 2013); see also Petitioner’s Brief of Amici, 52 *Intell. Prop. Law Profs.* at 10-11, *eBay*, 547 U.S. 388 (No. 05-130).

10. See, e.g., David Kline & Bernard J. Cassidy, *Are Software Patents Stifling Innovation?*, IPWATCHDOG (Apr. 11, 2014, 10:00 AM), <http://www.ipwatchdog.com/2014/04/11/are-software-patents-stifling-innovation/> [hereinafter Kline & Cassidy, *Stifling*]; David Kline & Bernard J. Cassidy, *Myths of the Patent Wars: An “Explosion of Patent Litigation” Greater*

The struggle over patent alienability is to be expected as technology advances. In an information society, the workforce redirects its efforts from growing food and multiplying products towards servicing the proliferating communicative and symbolic needs of a wealthier population.¹¹ Capitalism is the basis of industrial or information-based societies, and with it comes the iron law of supply and demand. As the demand for a particular technology rises, either the profits from producing it, the licensing fees from authorizing its use, or the infringement of the rights associated with it must increase, unless it is in the public domain.¹² An information society therefore sees political

Than Any in History?, IPWATCHDOG (Apr. 8, 2014, 10:08 AM), <http://www.ipwatchdog.com/2014/04/08/myths-of-the-patent-wars-patent-litigation-explosion/> [hereinafter Kline & Cassidy, *Myths*]; Joel Benjamin, *The Other Side of the Debate over Patent Trolls*, IPWATCHDOG (Dec. 10, 2013, 7:55 AM), <http://www.ipwatchdog.com/2013/12/10/the-other-side-of-the-debate-over-patent-trolls/id=46671/>; Brian Pomper, *Statement on Passage of the Innovation Act by the House Judiciary Committee*, INNOVATION ALLIANCE (Nov. 21, 2013), <http://innovationalliance.net/from-the-alliance/innovation-alliance-statement-passage-innovation-act-house-judiciary-committee/>; AIPLA, *supra* note 2; Jason Rantanen et al., *The America Invents Act Jeopardizes American Innovation*, 160 U. PA. L. REV. PENNUMBRA 229, 230 (2012); Raymond P. Niro, *Who Is Really Undermining the Patent System—“Patentrolls” or Congress?*, 6 J. MARSHALL REV. INTELL. PROP. L. 185, 194-95 (2007); Brief for the U.S. as Amicus Curiae Supporting Respondent at 20-27, *eBay*, 547 U.S. 388 (No. 05-130); Brief of Various Law & Economics Professors as Amici Curiae in Support of Respondent at 14-30, *eBay*, 547 U.S. 388 (No. 05-130); Brief for Pharmaceutical Research and Manufacturers of America as Amicus Curiae in Support of Respondent at 18-25, *eBay*, 547 U.S. 388 (No. 05-130); Ronald J. Mann & Thomas W. Sager, *Patents, Venture Capital, and Software Start-Ups*, 36 RES. POL’Y 193, 197 (2007); *The Bayh-Dole Act: A Review of Patent Issues in Federally Funded Research: Hearing on Pub. L. No. 96-517 Before the Subcomm. on Patents, Copyrights & Trademarks of the Comm. on the Judiciary*, 103d Cong. 103-1038 (1994) (letter from Christopher J. Doherty, Wash. Div., New Eng. Biomed. Research Coal., to the Hon. Dennis DeConcini, Subcomm. of Patents, Copyrights & Trademarks), available at <https://open.library.org/books/OL23280326M/>; *id.* at 100-01 (statement of Charles M. Vest, President, Mass. Inst. of Tech.).

11. See, e.g., JEFF GOLDSMITH, *THE LONG BABY BOOM: AN OPTIMISTIC VISION FOR A GRAYING GENERATION* 82-83 (2008) (“Knowledge workers write software, novels, and screenplays. . . . In short, they create new intellectual property.”); *id.* at 83 (noting that scholars estimate that creative or knowledge workers make up 30% of the U.S. labor force and 47% of all compensation paid to workers); 2 RAMESH CHANDRA, *INFORMATION TECHNOLOGY IN 21ST CENTURY* 52 (2003) (“Highly productive employment in today’s economy will require the learner to constantly manipulate symbols, such as the political, legal, and business terms and concepts (such as intellectual property), and digital money (in financial systems and accounting concepts). These ‘symbolic analysts’ . . . are in high demand.” (citing ROBERT REICH, *THE WORK OF NATIONS* 225-33 (1993))); *id.* at 53 (“The emerging economy is based on knowledge. . . . Research and development is a critical component. . . . [T]he new innovation-mediated paradigm requires a much more holistic approach to the business enterprise and . . . the intellectual contributions of all employees.”).

12. Cf. HERBERT HOVENKAMP ET AL., *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* 4-73 to -75, 4-84 to -85 (2009) (noting that copyright and patent protection has often been established to prevent infringers and innovators/creators from having the same cost structure, reducing the incentive to create or innovate, and that legal remedies against infringement create a “monopoly pricing” dynamic

struggle increasingly redirected from land and labor to licensing rights in intangibles. As agriculture and manufacturing decline in relative terms as economic sectors, the field of battle shifts from the allocation of soil or regulation of organized labor to the rules governing the creation, ownership, and dissemination of information.¹³

This Article analyzes the issues raised by the Innovation Act as a template for similar efforts that may arise in this country or in others to rein in patent assertion and enforcement. The Act passed the U.S. House of Representatives on a promise to deal with the problem of “patent trolls,” or PAEs.¹⁴ Part II surveys the PAE controversy from a variety of perspectives, including the history and theory of transactions in real property, and raises several economic issues relevant to the proposed PAE legislation, including the need for owners to alienate the legally enforceable rights they acquire and the dynamic benefits of property alienability notwithstanding short-term administrative costs. Part III describes the decade of reforms that led up to the Innovation Act, with a focus on critiques of patent enforcement in general and PAEs in particular. Part IV responds to these concerns by surveying legal doctrines that may undermine the allegedly adverse effects of patent litigation. The Article concludes that current efforts may not be as beneficial to innovation as their proponents have claimed. The courts already have adequate tools with which to address the alleged abuses by PAEs, including the Patent Act of 1952, the Sherman Act, the Federal

whereby the fixed cost of research and development is recouped through profits from production or licensing fees); GARY J. BECKER & RICHARD A. POSNER, *UNCOMMON SENSE: ECONOMIC INSIGHTS, FROM MARRIAGE TO TERRORISM* (2009). Becker and Posner argue that patent rights contribute to the transmission of information concerning societal demand for a product or service, because the price of the product or service as represented by the royalty imposed by a court or agreed to by an actual or potential infringer. *Id.* They suggest that this creates social value by covering the cost of inventing and manufacturing products, while “the patent prevents competition that would eliminate a return to the patentee in excess of the cost of production.” *Id.* at 7.

13. See DANIEL BELL, *THE COMING OF POST-INDUSTRIAL SOCIETY* 116-26 (1973); VINCENT MOSCO, *THE PAY-PER SOCIETY: COMPUTERS AND COMMUNICATION IN THE INFORMATION AGE* 28 (1989). Since the 1950s and especially since the 1980s, manufacturing as a share of the economy has declined. See Robert D. Atkinson et al., *What Experts Are Missing About American Manufacturing Decline*, INFO. TECH. & INNOVATION FOUND. 4, 24-26 (Mar. 2012), <http://www2.itif.org/2012-american-manufacturing-decline.pdf>. In addition, the United States has run increasing trade deficits in agricultural products and manufactured goods, but trade surpluses in services worth more than \$1 trillion per decade. See *id.* at 60, 68.

14. See Letter from Victoria A. Espinel to Robert W. Goodlatte, *supra* note 9; Bob Goodlatte & Mike Lee, *Restore the Founders’ Patent System*, NAT’L REV. ONLINE (Dec. 4, 2013, 9:00 AM), <http://www.nationalreview.com/article/365423/restore-founders-patent-system-bob-goodlatte-mike-lee>; Graves, *supra* note 1; Meloy, *supra* note 1.

Trade Commission Act, *Alice Corp.*, KSR, Rule 11 sanctions for baseless filings, and their inherent power.

II. LEGAL AND ECONOMIC THEORIES OF ASSET ALIENABILITY

A. *The Alienability of Property in Economic History and Theory*

In the nineteenth century, the law viewed restraints upon the alienation of property or legal rights as being generally against public policy, unless public policy forbade the specific transfer at issue.¹⁵ The principle that land should be alienable to fund other obligations or necessities, such as the payment of debts, dates back to the time of Magna Carta.¹⁶ Since the sixteenth century, choices in action (e.g., claims against debtors) have been assignable.¹⁷ Both estates and land and causes in action thereby became freely assignable.¹⁸ Courts in U.S. states spoke of a “general policy” in favor of property being alienable.¹⁹ One scholar’s theory was that “[t]he power of alienation is a necessary consequence of ownership, and it is founded on natural right.”²⁰

Economic theory has also endorsed the alienability of property. Adam Smith wrote that the progress of the English colonies in North America was very brisk because, in addition to an abundance of good land and liberty under law, the alienability of land promoted the sale of any “great uncultivated estate.”²¹ Feudal nations suffered weak productivity growth due to unclear and ill-defined land rights.²² The evolution of English law towards fee simple, alienable real property rights facilitated the division of labor, the emergence of economies of scale, land deals characterized by low transaction costs, and long-term investment.²³

15. JOHN CHIPMAN GRAY, RESTRAINTS ON THE ALIENATION OF PROPERTY 2 (1895).

16. *See id.*

17. *See id.* at 3.

18. 1 HENRY DUNNING MACLEOD, THE THEORY AND PRACTICE OF BANKING 187-92 (London, Longmans, Green, Reader & Dyer 1875).

19. *See Overman’s Appeal*, 88 Pa. 276, 281 (1879); *Brothers v. McCurdy*, 36 Pa. 407 (1860); *Black v. Scott*, 2 F. Cas. 325 (C.C.D. Va. & N.C. 1828); *see also Elliott v. Delaney*, 116 S.W. 494 (Mo. 1909).

20. EBEN FRANCIS THOMPSON & JAMES KENT, AN ABRIDGMENT OF KENT’S COMMENTARIES ON AMERICAN LAW 300 (Boston, Houghton, Mifflin & Co. 1886).

21. 2 ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 369-71 (London 1799).

22. *See* JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 77 (2009).

23. *Cf. id.*; *see also* FRANK C. KIDNER ET AL., MAKING EUROPE: THE STORY OF THE WEST SINCE 1300, at 535 (2001) (“Enclosure allowed for economies of scale in agricultural production and made experimentation with different crops and crop rotations possible.”). As James Boyle points out:

In the case of patents, economic theory hypothesizes that patents will promote cooperation between inventors and those best situated to commercialize inventions, along with investment in research and development (R&D) and companies specializing in it.²⁴ Inventors, potential assignees, and potential licensees make a market in R&D rights, which some economists believe to be more efficient than having public R&D funding alone.²⁵ Absent patents, privately-funded R&D would take place under conditions of even more paranoia and noncooperation with others who might copy inventions at relatively low cost.²⁶

The dynamic benefits of patent protection fall into at least four distinct categories. First, the dynamic benefit of all intellectual property rights is that by preventing free riding on investments in improved products or services, such rights increase the overall level of investment in such improvements.²⁷ Exclusive rights promise pricing power to investors in enhanced business methods, production facilities, and quality control processes.²⁸ Second, the prospect that a patent will enable its

Before the enclosure movement, the feudal lord would not invest in drainage systems, sheep purchases, or crop rotation that might increase yields from the common—he knew all too well that the fruits of his labor could be appropriated by others. The strong private property rights and single entity control that were introduced in the enclosure movement avoid the tragedies of overuse and underinvestment. More grain will be grown, more sheep raised; consumers will benefit; and fewer people will starve in the long run. If the price of this social gain is a greater concentration of economic power, or the introduction of market forces into areas where they previously had not been so obvious, . . . then, enclosure’s defenders say, so be it. In their view, the agricultural surplus produced by enclosure helped to save a society devastated by the mass deaths of the sixteenth century.

James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 35-36 (2003).

24. See BESSEN & MEURER, *supra* note 22, at 73, 76.

25. THOMAS P. COTTER, COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS 26 (2011).

26. See *id.* at 26-27.

27. See William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J.L. & ECON. 265, 265-66 (1987); see also William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659 (1988); Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1827 (1984); William M. Landes & Richard A. Posner, *Indefinitely Renewable Copyright*, 70 U. CHI. L. REV. 471 (2003).

28. See RICHARD A. EPSTEIN, PRIVATE AND COMMON PROPERTY: LIBERTY, PROPERTY, AND THE LAW 139-41 (2013); *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 4; ROBERT MERGES ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 526 (1st ed. 1997); see also *Siegel v. Chicken Delight, Inc.*, 448 F.2d 43, 50 (9th Cir. 1971) (“Just as the patent or copyright forecloses competitors from offering the distinctive product on the market, so the registered trade-mark presents a legal barrier against competition.”); *P.D. Rasspe Sohne GMBH & Co. v. Nat’l-Standard Co.*, No. K86-82 CA(8), 1990 U.S. Dist. LEXIS 19646, at *12 (W.D. Mich. Feb. 13, 1990) (“The holders of common law

holder or its licensees to dominate an industry, and earn profits substantially above the average, conveys signals to the value of the firm holding other investors or licensing the patent, thereby increasing equity investments in that firm and raising the long-term value to its owners.²⁹ Third, patent rights may increase the frequency with which inventors disclose new business methods, manufacturing techniques, chemical compositions, alloys, or other inventions to their competitors, potential business partners, and members of the public, including the readers of trade publications and of academic books and journals.³⁰ Finally, patent rights may reduce an inventor's cost of doing business. Without a patent, an inventor may invest in socially wasteful contractual covenants, nondisclosure agreements, armed guards, data encryption, cameras, vaults, and other self-help measures to ensure the secrecy of R&D projects.³¹ Moreover, the prospect of pricing power through licensing or manufacturing may reduce the inventor's otherwise pressing need to engage in socially wasteful investments by locking up the inputs needed for the invention.³²

Patent licenses and assignments resemble the alienation of land in Smith's theory, in that they enable inventors to disclose their discoveries and inventions to partners rather than leave them uncultivated.³³ Moreover, as the rent from or price of land signals to commercial farmers the productive potential of the land being rented or bought, the income earned from the alienation of patents serves as a signal of productive areas of R&D to focus on in the future.³⁴ Venture capitalists may decide to fund new companies based in part on their patent portfolios.³⁵

trademarks, registered trademarks, see 15 U.S.C. § 1052, copyrights, patents and trade secrets receive in varying degrees a legal monopoly.”)

29. See COTTER, *supra* note 25, at 26-27; *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 4-6.

30. See EPSTEIN, *supra* note 28, at 143; *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 6-7.

31. See EPSTEIN, *supra* note 28, at 142-43; *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 5-7; Robert Bone, *Trade Secrecy, Innovation and the Requirement of Reasonable Security Precautions*, in *THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH* 47 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011).

32. See EPSTEIN, *supra* note 28, at 144; *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 35.

33. See COTTER, *supra* note 25, at 27.

34. See *id.*

35. See *id.* (describing empirical work on this point) (citing John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 488 n.141 (2004); Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1280 (2009); Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002)); Kline & Cassidy, *supra* note 10 (representing an empirical study of this

In a knowledge economy, companies increasingly make markets in technologies through open processes of joint improvements, rather than hoarding R&D internally.³⁶ In an assignment or exclusive license, patent rights are rented or sold, with or without the licensor's related know-how.³⁷ When the know-how goes with the patent rights, the transaction is often referred to as a "technology transfer."³⁸ Intellectual property licensing provides manufacturers such as Kodak with the liquidity they need to innovate and pay for pensions and overhead.³⁹ As licensing revenue falls, such firms must lay off thousands of employees.⁴⁰

Empirical research has borne out some of these predictions or observations. As countries get wealthier, the correlation between intellectual property and R&D spending increases, although that may be because firms enriched by R&D are better lobbyists for tougher patent laws.⁴¹ The World Intellectual Property Organization (WIPO) maintains that across developed countries, R&D investment has been tightly correlated with patent applications.⁴² Economic historians point out that

phenomenon during "Internet Bubble" of late 1990s); *see also* Andrew Chadeayne, *Shark Tank and Patents*, INVENTING PATS. (July 8, 2013), <http://inventingpatents.com/shark-tanks-advice-regarding-filing-patents/> (noting that without something patented or otherwise proprietary, an inventor is unlikely to secure venture capital financing from wealthy investors appearing on ABC's *Shark Tank*); LORI GREINER, INVENT IT, SELL IT, BANK IT!: MAKE YOUR MILLION-DOLLAR IDEA INTO A REALITY (2014) (describing how the owner of 120 patents and co-host of *Shark Tank* argues that without a patent, businesspeople enter a knife-fight or gunfight unarmed, to be ravaged by "copycats").

36. *See* FRAUKE RÜTHER, PATENT AGGREGATING COMPANIES: THEIR STRATEGIES, ACTIVITIES AND OPTIONS FOR PRODUCING COMPANIES 2 (2012).

37. *See id.*

38. *Id.*

39. *See Form 10-Q Quarterly Report*, KODAK (Aug. 7, 2013), <http://investor.kodak.com/secfiling.cfm?filingid=31235-13-39> ("Kodak historically used cash received from operations, including intellectual property licensing, and the sale of non-core assets to fund its investment in its growth businesses and its transformation from a traditional film manufacturing company to a digital technology company.").

40. *See Form 10-Q Quarterly Report*, KODAK (Mar. 19, 2014), <http://investor.kodak.com/secfiling.cfm?filingID=1193125-14-106388> (describing how Kodak's global employees fell from 18,800 in 2010 to 8,800 in 2013, and U.S. employees from 9,500 in 2010 to 3,600 in 2013, a period in which its licensing revenue declined from \$838 million in 2010 to \$535 million in 2013).

41. *See* BESSEN & MEURER, *supra* note 22, at 83; WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 410 (2009) (stating that in late-twentieth-century United States, R&D and patent rights were correlated). *But cf.* DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT 53, 64, 69, 84 (large print ed. 2010) (noting differences in opinion among scholars as to relationship between patent rights and R&D growth, and differences in need for patent protection across different industries).

42. *See* Kamil Idris, *Intellectual Property-A Power Tool for Economic Growth*, WORLD INTELLECTUAL PROP. ORG. 34 (2003), http://www.wipo.int/export/sites/www/freepublications/en/intproperty/888/wipo_pub_888.pdf.

the Industrial Revolution began in the country with one of the earliest and strongest patent systems, the United Kingdom.⁴³ At that time in Britain, inventors sold their patents for substantial sums.⁴⁴ The rate of patenting rose from 57 to 388 new patents per year,⁴⁵ and nearly half of significant textile inventions were patented.⁴⁶

Mimicking the British system, the United States overtook Britain in industrialization and growth after a surge in patenting during the 1850s.⁴⁷

43. See BESSEN & MEURER, *supra* note 22, at 77. The Kingdom of Great Britain subsumed the Kingdom of Ireland in 1801, after the Industrial Revolution had begun, to create the United Kingdom of Great Britain and Ireland. The King of England, however, claimed to be the King of Ireland as far back as the sixteenth century. See THOMAS FITZGERALD, *IRELAND AND HER PEOPLE: A LIBRARY OF IRISH BIOGRAPHY* 718 (1911).

44. Thomas Webster, *On the Patent Laws*, 1 TELEGRAPHIC J. 213, 213 (1864); cf. JOEL MOKYR, *THE LEVER OF RICHES: TECHNOLOGICAL CREATIVITY AND ECONOMIC PROCESS* 247-48 (2000) (noting that inventors and scholars believed that patents made inventors willing to invest large amounts of resources in innovation with a beneficial impact on the state of technology).

45. Sean Bottomley, *The British Patent Series During the Industrial Revolution, 1700-1851*, SANT'ANNA SCH. ADVANCED STUD. LABORATORY ECON. & MGMT. (May 24, 2011), http://www.lem.sssup.it/WPLem/documents/bottomley_lemseminar.pdf; see also Sean Bottomley, *Patenting in England, Scotland and Ireland During the Industrial Revolution, 1700-1852*, INST. FOR ADVANCED STUDY TOULOUSE (2014), http://idei.fr/doc/wp/2014/wp_iast_1407.pdf.

46. Trevor Griffiths, Phillip Hunt & Patrick O'Brien, *Inventive Activity in the British Textile Industry, 1700-1800*, 52 J. ECON. HIST. 881, 885 (1992).

47. See BESSEN & MEURER, *supra* note 22, at 79. The surge in patenting predated the 1850s, to some extent. See *U.S. Patent Activity, Calendar Years 1790 to the Present*, U.S. PAT. & TRADEMARK OFF. (2012), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm (last updated June 20, 2014, 12:17 AM). Indicators of the United States surpassing British innovativeness included Jethro Wood's plow patent in 1814, the development of the railway passenger car after 1823, the disclosure of telegraph technology by Charles Morse in 1832, the vulcanization patents of Charles Goodyear in the 1840s, the patenting of the modern sewing machine by Elias Howe and others in or about 1846, the invention of advanced harvesting machines by Cyrus McCormick in the 1850s, the improvement of iron steamships in the 1860s, the invention of the air-brake for railcars in 1868 by George Westinghouse, the completion of the transcontinental telegraph in 1861 and of transcontinental railroad in 1869, the building of the first skyscrapers in Chicago and New York between 1883 and 1890, and the establishment in 1893 of the first company for the manufacture of practical gasoline-powered automobiles by Charles and Frank Duryea of Illinois and Massachusetts. See *Distinguished American Inventors*, in ILLINOIS LEGISLATIVE MANUAL FOR 30TH GENERAL ASSEMBLY, 1877 AND 1878, at 77 (1877); PETER J. LING, *AMERICA AND THE AUTOMOBILE: TECHNOLOGY, REFORM AND SOCIAL CHANGE 1893-1923*, at 98 (1992); BOYD C. SHAFER ET AL., *1865 TO THE PRESENT: A UNITED STATES HISTORY FOR HIGH SCHOOLS* 103-04, 113, 116 (1966); Jenkins Bros., *Advertisement*, ENGINEERING NEWS-RECORD, Oct. 3, 1929, at 144; Malcolm Keith, *Chicago's Part in Building Development*, BUILDINGS & BUILDING MGMT., June 1918, at 30; *The First Skyscraper*, BRIDGEMEN'S MAG., Mar. 1908, at 133, available at http://books.google.ca/books?id=_YmcAAAAMAAJ&pg=PA133. Karl Benz may have manufactured automobiles earlier than the Duryea brothers, but his version traveled at less than twelve miles per hour in an 1894 competition, i.e. closer to ten than to twenty miles per hour, whereas the Duryea automobile traveled at a faster eighteen miles per hour at maximum speed, a better alternative to horse-drawn carriages, which could travel about ten kilometers per hour. PAUL NOONCREE HASLUCK, *THE AUTOMOBILE: A PRACTICAL TREATISE ON THE CONSTRUCTION OF MODERN MOTOR CARS* 765 (1903) (noting that Roger rode a Benz-powered car in the 1894 Paris-Rouen race, taking fifth

Up to 80% of U.S. economic growth in the first half of the twentieth century was due to technological innovation.⁴⁸ Almost half of U.S. per capita income growth in the 1930s, 1940s, and 1950s resulted from the progress of science and learning.⁴⁹ Microsoft has argued that the extension of patent rights to software-related technologies preceded or coincided with the rapid and healthy expansion of the software business.⁵⁰ Patent and trademark reform in Brazil, China, India, and Russia either led to or coincidentally preceded rapid growth in foreign direct investment, innovation, and per capita income.⁵¹

B. The Contemporary Importance of Patent Alienability

A study also suggests that manufacturing companies active in the United States in 1994 viewed patent protection as one of their primary ways of earning adequate returns on their investments.⁵² In ten of the industries surveyed by the study's authors, respondents cited actual or potential licensing revenues as a benefit of patents.⁵³ IBM and other

prize); R.P. Hearne, *Epochs in Automobilmism*, in *A HISTORY OF THE FIRST TEN YEARS OF AUTOMOBILISM* 76 (1906) (explaining that the 1894 Paris-Rouen race covered eighty miles, and the winning car went twelve miles per hour); Charles D.O. Jephson et al., *Report of the Committee on Steam Carriages*, 14 J. FRANKLIN INST. 168, 171 (1832); Charles E. Duryea, *Beginnings of the Motor-Car Industry*, 38 LITERARY DIG. 603 (1909); SARAH EVANS, HENRY'S ATTIC: SOME FASCINATING GIFTS TO HENRY FORD AND HIS MUSEUM 112 (2006); WILLIAM KASZYNSKI, *THE AMERICAN HIGHWAY: THE HISTORY AND CULTURE OF ROADS IN THE UNITED STATES* 23 (2000); *History of Early American Automobile Industry (Chapter 3)*, EARLY AM. AUTOMOBILES, <http://www.earlyamericanautomobiles.com/Americanautomobiles3.htm> (last visited Nov. 17, 2014); see also Arie Bleijenberg, *The Attractiveness of Car Use*, in *CARS AND CARBON: AUTOMOBILES AND EUROPEAN CLIMATE POLICY IN A GLOBAL CONTEXT* 22 (Theodoros I. Zachariadis ed., 2011) (noting the ten-kilometer-per-hour average speed of a carriage).

48. See IDRIS, *supra* note 42, at 27.

49. See *id.* at 28.

50. See *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 48.

51. See IDRIS, *supra* note 42, at 36, 38-39, 117 (focusing on Brazil and China); see also Federal'nyi Zakon o vvedenii v deistvie chasti chetvertoi Grazhdanskogo kodeksa Rossiiskoi Federatsii [Federal Law on Putting into Operation Part Four of the Civil Code of the Russian Federation] 2006, No. 231-FZ (amended 2008), available at <http://www.wipo.int/wipolex/en/details.jsp?id=6787> (follow English and Russian PDF links in "Available Texts" section) (last visited Sept. 19, 2014); Elena Shipilova, Advertisement, *Who Wants to Be a Programmer?*, N.Y. TIMES, Mar. 20, 2013, at 4 (noting that Russian information technology exports doubled in four years after 2008); Rakhi Verma & Louis Brennan, *An Analysis of the Macroeconomic Determinants of Indian Outward Foreign Direct Investment*, in *EMERGING ECONOMIES AND FIRMS IN THE GLOBAL CRISIS* 140 (Marin Marinov & Svetla Marinova eds., 2012) (noting that India's patent applications rose nearly fourfold, 1998-2009).

52. See COTTER, *supra* note 25, at 25 (citing Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* (Nat'l Bureau of Econ. Research Working Paper No. 7552, 2000), available at <http://www.nber.org/papers/w7552.pdf>).

53. Cohen et al., *supra* note 52, at 21.

hardware and business-method companies are good examples; IBM's licensing revenue soared from \$30 million in 1990 to \$1.2 billion in 2004.⁵⁴ As Japanese companies began to outcompete U.S. firms like Texas Instruments, the U.S. firms turned to licensing intangible rights, with Texas Instruments earning more than \$1.5 billion by 1993.⁵⁵ Firms in the technology industry have viewed Texas Instruments as a model of how to emerge from actual or imminent bankruptcy by asserting a patent portfolio against infringers.⁵⁶ Globally, licensing income more than tripled from 1990 to 2004.⁵⁷ This was despite the fact that China, whose residents own fewer patents per capita, dramatically devalued its currency, creating a remarkable competitive advantage for Asian multinationals versus U.S. ones.⁵⁸

In the United States since the 1990s, venture capitalists tended to allocate less capital to new companies that had no patents to sell, license, or use to protect their income streams.⁵⁹ Venture capital executives often stopped by the technology licensing office of the Massachusetts Institute of Technology (MIT) to inquire into potential deals with inventive faculty and the university's patent attorneys.⁶⁰ Other research indicates that the leading universities where students helped develop the technologies underlying Netscape, Google and other innovative firms, e.g., the University of Illinois and Stanford,⁶¹ earned millions of dollars through

54. See RÜTHER, *supra* note 36, at 3. Based on 1999 data, some of this reflected assignments of patents and services affiliated with licensing or sale of patents, leaving a smaller amount in patent licensing per se. See Bessen & Meurer, *supra* note 22, at 117.

55. RÜTHER, *supra* note 36, at 3.

56. *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, ch. 3, at 39 n.245.

57. See RÜTHER, *supra* note 36, at 3.

58. See NATHAN LEWIS, *GOLD: THE ONCE AND FUTURE MONEY* 91, 327, 389-90 (2007) (indicating devaluation of the yen with respect to the dollar and gold after 1989, and of the yuan in 1989 and 1993); KWASI KWARTENG, *WAR AND GOLD: A FIVE-HUNDRED-YEAR HISTORY OF EMPIRES, ADVENTURES AND DEBT* 282-89 (2014) (arguing that there was dramatic devaluation of the yuan in 1990s); Chris Mooney, *Study: Science and Religion Really Are Enemies After All*, MOTHER JONES (Sept. 3, 2014, 6:05 AM EDT), <http://www.motherjones.com/environment/2014/09/religion-quashes-innovation-patents> ("While Chinese residents filed more total patent applications (560,681) in 2012 than citizens of any other country including the United States (460,276), the US still filed more patents per capita, since its population is less than a third of China's." (emphasis omitted)).

59. See COTTER, *supra* note 25, at 25 (citing Graham, *supra* note 35, at 1280); Mann & Sager, *supra* note 10.

60. SCOTT A. SHANE, *ACADEMIC ENTREPRENEURSHIP: UNIVERSITY SPINOFFS AND WEALTH CREATION* 78-79 (2004).

61. See MICHELE HILMES, *ONLY CONNECT: A CULTURAL HISTORY OF BROADCASTING IN THE UNITED STATES* 375, 431 (2013).

patent licensing by the mid-1990s.⁶² Universities' contribution to U.S. R&D investment more than doubled from 1960 to 1995, accounting for 16% of the total investment in 1995.⁶³ Their efforts led to licensing revenues rising from \$218 million in 1991 to \$1.3 billion in 2003.⁶⁴ Most universities do not have computer hardware or software manufacturing facilities.⁶⁵ Had patent alienability been barred prior to 2004, U.S. R&D might have stagnated.

A mid-1990s survey of universities discovered that \$9 billion in product revenue and 53,000 jobs were linked to university licenses of intellectual property rights in new technologies.⁶⁶ For example, more than 800 new companies with sales of more than \$60 billion and a market capitalization of \$2.5 billion arguably owed their existence to the first eight years in operation of MIT's licensing office.⁶⁷ By 2006, universities received more than 3,000 new patents, executed nearly 5,000 new licenses, and launched more than 500 companies per year.⁶⁸ As a biotechnology industry executive testified before Congress in 1994:

62. See David C. Mowery et al., *The Growth of Patenting and Licensing by U.S. Universities: An Assessment of the Effects of the Bayh-Dole Act of 1980*, 30 RES. POL'Y 99 (2001), available at <http://www.inova.unicamp.br/inovacao/report/nelsonpatentes.pdf>, and NATHAN NEWMAN, NET LOSS: INTERNET PROPHETS, PRIVATE PROFITS, AND THE COSTS TO COMMUNITY 113-17 (2010), for a description of the evolution of National Center for Supercomputing Applications at University of Illinois, development of graphical user interface Internet browser Mosaic there, launch of Netscape by a former student, and licensing to various companies from there. See SHANE, *supra* note 60, at 38 (noting that the University of Illinois earned \$2 million from litigation settlement with Netscape in mid-1990s); see also *Qualcomm*, in 20 INTERNATIONAL DIRECTORY OF COMPANY HISTORIES 440 (Jay P. Pederson ed., 1997) (describing licensing of email client Eudora by University of Illinois Board of Trustees to QUALCOMM Inc.); *Advertisement*, in INTERNET WORLD-VOLUME 7, ISSUES 7-12, at 5 (1996), available at <http://books.google.fr/books?id=Xd8aAQAAAJ&q=eudora+million+email+10+intitle:internet&dq=eudora+million+email+10+intitle:internet&hl=fr&sa=X&ei=54tkVNbXAsTVygPh9oKwBw&ved=0CCAQ6AEwAA> (claiming that 10 million Internet users ran Eudora by 1996).

63. Mowery et al., *supra* note 62, at 5.

64. Clifton Leaf, *The Law of Unintended Consequences*, FORTUNE (Sept. 19, 2005), http://archive.fortune.com/magazines/fortune/fortune_archive/2005/09/19/8272884/index.htm; Mark R. Wisner, *Proposed Changes to the Laws Governing Ownership of Inventions Made with Federal Funding*, 2 TEX. INTELL. PROP. L.J. 193, 195 (1994).

65. Meloy, *supra* note 1.

66. *The Bayh-Dole Act: A Review of Patent Issues in Federally Funded Research: Hearing on Pub. L. No. 96-517 Before the Subcomm. on Patents, Copyrights and Trademarks of the Comm. on the Judiciary*, *supra* note 10, at 4.

67. *Id.* at 100-01; Howard Goodman, *University Research: Whose Work Is It Anyway?*, PHILA. INQUIRER, Sept. 12, 1993, at A1.

68. See A.J. Stevens, *Technology Transfer and Its Role in the Practice of Reproductive Endocrinology and Infertility*, in REPRODUCTIVE ENDOCRINOLOGY AND INFERTILITY: INTEGRATING MODERN CLINICAL AND LABORATORY PRACTICE 764 (Douglas T. Carrell & C. Matthew Peterson eds., 2010).

In a 1993 survey by *Business Week* seven of the top ten firms in the U.S. in terms of research expenditures per employee were biotechnology companies—Biogen (\$178,168 per employee), Genentech (\$115,893), Centocor (\$105,291), Amgen (\$78,072), Chiron (\$76,554), Genetics Institute (\$66,572), and Immunex (\$55,034). On average, biotech firms spend \$59,000 per employee on research. The U.S. corporate average was \$7,106. . . .

The most common technology transfer agreements involve the licensing to a private firm of patent rights (or potential patent rights) secured by a government funded research facility. These agreements may typically require the private firm to pay some fees at the time the technology is transferred and then to pay royalties if and when the firm is able to develop a product for sale in the marketplace.⁶⁹

Global patent licensing revenue rose from \$15 billion in 1990 to \$150 billion in 2003, by one apparent estimate.⁷⁰ One projection was that such revenue would hit \$500 billion in 2015.⁷¹ Global R&D spending increased from \$400 billion in the late 1980s to \$960 billion in 2006 and \$1.4 trillion in 2014.⁷²

In the era between the ringing endorsement of business method and software patents in *State Street Bank* and their reining in *Alice Corp. Pty. v. CLS Bank Int'l*, R&D investment by U.S. colleges and universities soared from \$27 to \$63 billion (1998 to 2011).⁷³ Industry's investment rose to even higher levels, from \$167 billion in 1998 to \$235 billion in 2011.⁷⁴ Total U.S. R&D rose from \$227 billion to \$424 billion.⁷⁵

69. *The Bayh-Dole Act: A Review of Patent Issues in Federally Funded Research: Hearing on Pub. L. No. 96-517 Before the Subcomm. on Patents, Copyrights and Trademarks of the Comm. on the Judiciary, supra* note 10, at 92, 96 (statement of Barbara Conta, Director of Technology Transfer for Regeneron Pharm. Corp. Tarrytown, N.Y.).

70. MICHAEL A. EPSTEIN & FRANK L. POLITANO, *DRAFTING LICENSE AGREEMENTS* 20-3 (4th ed. 2012).

71. *Id.*

72. MAREK THEE, *WHATEVER HAPPENED TO THE PEACE DIVIDEND?: THE POST-COLD WAR ARMAMENTS MORATORIUM* 44 (1991); David Popp, *Technology Transfer: Alternative Perspective*, in *SMART SOLUTIONS TO CLIMATE CHANGE: COMPARING COSTS AND BENEFITS* 371 (Bjorn Lomborg ed., 2010); R&D Magazine/Batelle, *2014 R&D Magazine Global Funding Forecast Executive Summary*, GLOBAL R&D FUNDING FORECAST (Dec. 9, 2013), <http://www.rdmag.com/articles/2013/12/2014-r-d-magazine-global-funding-forecast-executive-summary>.

73. *See National Patterns of R&D Resources: 2000 Data Update*, NAT'L SCI. FOUND. (2001), <http://www.nsf.gov/statistics/nsf01309/> (last visited Nov. 13, 2014); *Science and Engineering Indicators 2014 Chapter 4. Research and Development: National Trends and International Comparisons*, NAT'L SCI. FOUND. (2014), <http://www.nsf.gov/statistics/seind14/index.cfm/chapter-4> (last visited Nov. 13, 2014).

74. *See National Patterns of R&D Resources: 2000 Data Update, supra* note 73; *Science and Engineering Indicators 2014 Chapter 4. Research and Development: National Trends and International Comparisons, supra* note 73.

III. CRITIQUES OF PATENT ALIENATION AND MONETIZATION

A. *Brief History of Patent Reform*

Despite the apparent successes of the U.S. patent licensing system—which gave rise to remarkable stories with few parallels in human endeavor like Genentech and Google—it is currently under attack from many sides. In 2003, President George W. Bush’s Undersecretary for Commerce and Director of the USPTO alleged that the U.S. patent system was sick and that it required comprehensive change to ensure that quality patents would issue.⁷⁶ That same year, the Federal Trade Commission (FTC) noted that nearly half of all issued patents that were subject to a final court ruling on their invalidity had been found to be improvidently granted by the USPTO.⁷⁷ In 2005, the Congressional Research Service warned that patent litigation was becoming very expensive to initiate or defend, with attorney’s fees of \$1.5 million per side, or much more in large cases.⁷⁸ That year, the former Assistant Secretary of Commerce and Commissioner of the USPTO urged “deep patent harmonization” in order to reduce the cost of securing global patent protection, insofar as Japan and Europe did not examine patents using the “first to invent” premise of the U.S. Constitution and the U.S. Patent Act.⁷⁹

In Fall 2007, the U.S. House of Representatives passed the Patent Reform Act of 2007 (H.R. 1908) by a solid majority with the intention of shifting the United States to a “first inventor to file” system.⁸⁰ It created more robust review of issued patents for invalidity on certain grounds and provided exclusive venue in the plaintiff’s home forum in the cases of manufacturers, corporate headquarters, R&D offices, universities, or nonprofit organizations.⁸¹ This provision was explicitly aimed at

75. See *National Patterns of R&D Resources: 2000 Data Update*, *supra* note 73; *Science and Engineering Indicators 2014 Chapter 4. Research and Development: National Trends and International Comparisons*, *supra* note 73.

76. See *United States Patent and Trademark Fee Modernization Act of 2003: Hearing on H.R. 1561 Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary*, 108th Cong. 7 (2003).

77. *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 6; COMM. ON INTELLECTUAL PROPERTY RIGHTS IN THE KNOWLEDGE-BASED ECON., A PATENT SYSTEM FOR THE 21ST CENTURY 48 (2004).

78. Raymond J. Keating, *Patent Reform: Protecting IP, Enabling Innovation, & Bolstering Entrepreneurship*, SBE COUNCIL (Feb. 2008), <http://www.sbecouncil.org/uploads/SBEC%20polseries%20IPPatents02081.pdf>.

79. *Id.* at 20, 23-24.

80. *Id.*

81. *Id.* at 23-24.

assignments of patents for purposes of litigation until license fees were paid in settlement of litigated claims.⁸²

Between 2003 and 2013, lobbyists and scholars warned of catastrophe if harsh measures were not taken to rein in patent alienability and resulting litigation. In 2003, Professor James Bessen of the Boston University School of Law predicted to the FTC that software and Internet patents would “thwart” and “stifl[e]” innovation, because all software and e-commerce depends on the prior art.⁸³ In 2005, the Vice President and Chief Patent Counsel of Time Warner told a Senate Committee that large companies faced “major damage,” small companies faced bankruptcy, and innovative services faced crippling liability due to patent lawsuits.⁸⁴ Also in 2005, Professor Josh Lerner of Harvard Business School told the U.S. House of Representatives that he saw a “perfect storm” including “strategic” litigation and other factors “that increasingly make[] the patent system a hindrance . . . to innovation.”⁸⁵ In 2007, Professor Adam Jaffe of Brandeis University counseled the House that due to “an overwhelming pressure to settle even frivolous complaints,” new technologies increasingly suffered “abandonment,” and consumers increasingly lacked full “access to new products—from lifesaving drugs to productivity-enhancing software.”⁸⁶ In 2009, the Chairman and Chief Executive Officer of Micron Technology informed the Senate that there would be less “innovation” due to a rising number of NPE lawsuits.⁸⁷ In 2011, the Financial Services Roundtable blamed NPEs for the lack of business lending in the United States in testimony that led to the America

82. *Id.*

83. *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 50-51.

84. *Recommended Patent Improvements: Hearing on Patent Law Reform: Injunctions and Damages Before the S. Comm. on the Judiciary, Subcomm. on Intell. Prop.*, 109th Cong. (June 14, 2005) (statement of Chuck Fish, Vice Pres. & Chief Patent Counsel, Time Warner Inc.).

85. *Patent Act of 2005: Hearing Before the Subcomm. on Courts, the Internet, & Intell. Prop. of the H.R. Comm. of the Judiciary*, 109th Cong. 33 (2005) (testimony of Josh Lerner, Jacob H. Schiff Professor of Inv. Banking, Harvard Bus. Sch.).

86. *American Innovation at Risk: The Case for Patent Reform: Hearing Before the Subcomm. on Courts, the Internet, & Intell. Prop. of the H.R. Comm. on the Judiciary*, 110th Cong. 7 (2007) (testimony of Adam Jaffe, Professor of Econ. and Dean of Arts & Scis., Brandeis Univ., Waltham Mass.).

87. *Hearing on the Patent Reform Act of 2009 Before the S. Comm. on the Judiciary*, 111th Cong. (2009) (testimony of Steven. R. Appleton, Chairman and Chief Exec. Officer, Micron Tech., Inc.).

Invents Act (AIA).⁸⁸ In June 2013, a White House study concluded that NPEs were “stifling innovation and putting a drag on our economy.”⁸⁹

In 2011, the U.S. House of Representatives proposed to cut the USPTO’s funding by \$400 million, which was expected to increase the backlog of patent applications beyond the then-existing level of 700,000.⁹⁰ Also in that year, Congress made it easier for inventors to fall prey to technicalities and successive challenges.⁹¹

B. The America Invents Act and Efforts To Reduce Infringers’ Patent Licensing Costs

The AIA passed in 2011. It was inaptly named because it was modeled on Canadian and other foreign laws that failed to achieve the level of innovation that have prevailed in California, Illinois, and Massachusetts.⁹² In fact, a Canadian university study found that this Canadian model was “skewed” towards multinational corporations and away from “independent inventors and small businesses.”⁹³ Two patent scholars wrote that the AIA seemed to be optimally designed to reduce the encouragement provided by patent rights to inventors hoping to innovate, to license their inventions, and to expand their R&D hiring and facilities.⁹⁴

Despite a token effort to help small inventors by reducing some fees, the thrust of the AIA is to create tricks and traps for the unwary filer.⁹⁵ Public uses and sales by other inventors or companies are more likely to invalidate a prior inventor’s patent.⁹⁶ Large corporations and technology licensing departments have the resources to keep track of such marketplace developments in a way that most single-minded

88. *America Invents Act: Hearing Before the Subcomm on Intell. Prop., Competition, and the Internet of the H.R. Comm. on the Judiciary*, 112th Cong. 56 (2011) (testimony of the Hon. Steve Bartlett, President and Chief Exec. Officer, Fin. Servs. Roundtable).

89. Gene Sperling, *Taking on Patent Trolls To Protect American Innovation*, WHITE HOUSE BLOG (June 4, 2013 1:55 PM EDT), <http://www.whitehouse.gov/blog/2013/06/04/taking-patent-trolls-protect-american-innovation> (citing Exec. Office of the President, *supra* note 4).

90. 157 CONG. REC. H827-29 (daily ed. Feb. 15, 2011).

91. See Dana Rohrabacher, *Are the New Patent Reform Rules Fair?*, U.S. NEWS & WORLD REP., Sept. 23, 2011, at 18.

92. *See id.*

93. *Id.*

94. See Jason Rantanen & Lee Petherbridge, *The America Invents Act Jeopardizes Innovation*, 160 U. PA. L. REV. PENNUMBRA 230, 230 (2012).

95. See Leahy-Smith America Invents Act (AIA) of 2011 § 10, 35 U.S.C. § 123 (2012).

96. *See id.* § 3, 35 U.S.C. § 102; see also *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 5-6 (1966) (explaining that the Patent Clause’s reference to “Discoveries” precludes Congress from “granting monopolies . . . in goods or businesses which had long before been enjoyed by the public”).

inventors or small firms cannot.⁹⁷ This disparity reduces the likelihood that innovators, having obtained an affordable patent in a transparent process, will earn significant income from licensing it to the multinational giants.

Moreover, under the AIA, large corporations and licensing departments may bombard the USPTO with technical articles and foreign patents to attempt to avoid licensing a pending patent filed by an individual.⁹⁸ Even if an application runs this gauntlet of summary judgment-like proceedings, potential infringers and competitors to the applicant may file Post-Grant Review and Inter Partes Review (IPR) proceedings to invalidate the patent after issuance.⁹⁹ Prior to the AIA, the cost of patenting was about \$20,000 including attorney's fees, and 37% of large companies in one survey avoided the patent system due to the cost of pursuing patents.¹⁰⁰ Under the AIA, IPR proceedings and proceedings for the review of covered business method patents may add \$600,000 to the cost of enforcing a patent against a single defendant, assuming similar costs to both sides and a finding of validity for the patent owner.¹⁰¹ Empirically, it appears that after being roughly stable from 2005 to 2011, median patent case litigation costs rose by 10% from 2011 to 2013 alone.¹⁰² This may frustrate the ability or willingness of small businesses to enforce their patent rights.

Both prior to and since the passage of the AIA, patents on commonplace features such as rounded edges and one-click e-commerce have led bloggers to ridicule the patent system, with a particular focus on efforts by their owners to use the federal courts to turn such vague and potentially invalid patents into lucrative settlements or jury verdicts.¹⁰³ In

97. See Ashby Jones, *Inventors Race To File Patents*, WALL ST. J. (Mar. 14, 2013, 7:17 PM PT), <http://online.wsj.com/news/articles/SB10001424127887324077704578360681887241150>.

98. See AIA § 6, 35 U.S.C. § 301.

99. See *id.*, 35 U.S.C. §§ 311-319, 321-329.

100. Stuart J.H. Graham & Ted Sichelman, *Why Do Start-Ups Patent?*, 23 BERKELEY TECH. L.J. 1063, 1072, 1084, 1094-95 (2008).

101. See Cheryl Milone, *The America Invents Act "Mini-Trials" Are the Next Battleground for Resolving Patent Disputes and Shifting Fees to Patent Owners*, IPWATCHDOG (Dec. 1, 2013, 11:54 AM), <http://www.ipwatchdog.com/2013/12/01/mini-trials-next-battleground/id=46514/>.

102. Saurabh Vishnubhakat, *What Patent Attorney Fee Awards Really Look Like*, 63 DUKE L.J. ONLINE 15, 18 (2014), http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1001&context=dlj_online.

103. See Kevin Drum, *One-Click Shopping Still Owned by Amazon*, MOTHER JONES (June 28, 2010, 9:09 PM EDT), <http://www.motherjones.com/kevin-drum/2010/06/one-click-shopping-still-owned-amazon> (criticizing Amazon's one-click e-commerce patent); Mark Gibbs, *Apple's Ridiculous Patent*, FORBES (July 27, 2012), <http://www.forbes.com/sites/markgibbs/2012/07/27/apples-ridiculous-patent/> (ridiculing Apple's rounded-edges design patents); Lerner, *supra* note

2011, the FTC concluded that such broad patents “can block competition . . . and harm innovation.”¹⁰⁴ Similarly, the Organisation for Economic Cooperation and Development (OECD) reported in 2004 that overly broad patents may be “costly to society.”¹⁰⁵ Intellectual Ventures has attracted particular opprobrium from infringers as a PAE or “patent troll” that supposedly imposes high costs on infringers and society by aggregating 80,000 patents and applications including 3,500 related to the financial industry, hiding behind “some 2000 shell companies,” employing “‘submarine’ hold-up” tactics to sue those who adopted infringing technologies in good faith many years ago, and threatening sham litigation based on invalid patents that cannot be invented around because there are so many of them, or maybe because they are so vague.¹⁰⁶ The United States Court of Appeals for the Federal Circuit has expressed concern that PAEs may win “nuisance value” settlements simply by being litigious.¹⁰⁷

C. *The Innovation Act as a Measure Aimed Directly at Patent Alienability*

In 2013, the U.S. House of Representatives passed the Innovation Act, H.R. 3309, by a vote of 325 to 91.¹⁰⁸ It would mandate that the losing party in a patent infringement suit pay attorney’s fees to the prevailing party absent exceptional circumstances or substantial justification for the losing party’s position despite the loss.¹⁰⁹ It would raise pleading standards to require alleging infringement claim-by-claim,

85, at 34 (“A decade later, Congress turned the Patent and Trademark Office (PTO) into a ‘profit center’ This shift led to pressures to grant more patents [including] absurdities such as awards for wristwatches (pawwatches?) for dogs, a method of swinging on a swing . . . , and peanut butter and jelly sandwiches.”); see also Mike Masnick, *The ‘Other’ One-Click Patent Holder Sues Apple, Paypal . . . and Victoria’s Secret*, TECHDIRT (Mar. 17, 2011, 2:42 PM), <http://www.techdirt.com/articles/20110317/03581313527/other-one-click-patent-holder-sues-apple-paypal-victorias-secret.shtml> (pillorying one-click e-commerce patents); Mike Masnick, *How Hard Is It To Realize That One-Click Buying Doesn’t Deserve a Patent?*, TECHDIRT (Feb. 23, 2010), <http://www.techdirt.com/articles/20100223/0249208265.shtml>.

104. *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8, at 3.

105. *Patents and Innovation: Trends and Policy Challenges*, OECD 28 (2004), <http://www.oecd.org/science/sci-tech/24508541.pdf>.

106. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, No. 1:13-cv-00740 (AJT/TRJ), 2013 U.S. Dist. LEXIS 177836, at *4-5 (E.D. Va. Dec. 18, 2013).

107. *Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1327 (Fed. Cir. 2011) (expressing concern that PAEs may be “exploit[ing] the high cost to defend complex litigation to extract a nuisance value settlement”).

108. See *Statement on Passage of the Innovation Act by the House Judiciary Committee*, *supra* note 10.

109. AIPLA, *supra* note 2.

and specifying the infringing product or process by name and type of infringement.¹¹⁰ The Chairman of the Judiciary Act, Bob Goodlatte, coauthored an article stating:

With troubling and increasing frequency, bad actors leverage the complexity of our patent laws to extort illegitimate fees from unsuspecting businesses. Start-ups and small businesses that do not have large litigation budgets are hit particularly hard by this devious practice.¹¹¹

Thus, the U.S. House of Representatives passed the Innovation Act with the intention of heightening patent infringement pleading standards to include the details of the infringement and the business of the patent owner. The legislation could prove to be devastating to patentees who are unable to explain these details because they are solo inventors, are just starting out in business, do not have lawyers on staff, cannot afford expensive legal counsel, or do not have access to industry insiders formerly employed by the infringers.

IV. ASSESSING PROPOSED REFORMS TO PATENT LAW DESIGNED TO PREVENT “ABUSE”

A. *Identifying Exaggerated Claims of Harm to Patent Infringers*

Some of the claims that NPEs and PAEs will destroy competition and innovation appear to be unfounded. The parade of horrors involving PAEs and patent licensing in general has not yet materialized.¹¹² Competition in computing, telecommunications, websites, and social media is generally healthy.¹¹³ The costs imposed by the patent system

110. *See id.*

111. Goodlatte & Lee, *supra* note 14.

112. *See* Editorial, *Patently Ridiculous*, N.Y. TIMES (Mar. 22, 2006), http://www.nytimes.com/2006/03/22/opinion/22wed1.html?_r=0 (“[M]any experts say we are not only restricting competition, but discouraging research and innovation as well [due to availability of patent injunctions and of patents on] the migration of a simple business practice onto the Internet or a mobile device.”); Kline & Cassidy, *Myths*, *supra* note 10 (describing the myth that “[a]n ‘explosion of patent litigation’ greater than any in history is imposing an unwarranted burden on industry and diverting resources better spent on innovation”); Kline & Cassidy, *Stifling*, *supra* note 10. Kline and Cassidy describe the same myth in *Stifling* and rebut it with one example: “It should first be noted that one of the biggest promoters of the myth that software patents are harmful to business and the economy is Google, despite the fact that the company partly owes its own existence to software patent No. 6,285,999 for founder Larry Page’s original page rank algorithm.” *Id.*; *cf.* Benjamin, *supra* note 10 (“[Corporate] lobbyists . . . claim that the trolls ‘stifle[] future development of technology.’”).

113. *See* U.S. Dep’t of Commerce, *Internet Policy Task Force, Copyright Policy, Creativity, and Innovation in the Digital Economy*, USTPO 1, 5, 80 (July 2013), <http://www.uspto.gov/news/publications/copyrightgreenpaper.pdf> (“[C]opyright-intensive industries [including computer software and the] broader Internet economy . . . grew by 46.3 percent between 1990 and 2011, outpacing other IP-intensive industries as well non-IP-intensive ones.”). The document goes on to

have not prevented companies like Google from earning extravagant profits.¹¹⁴ Although the average smartphone may infringe thousands of patents, and although Apple is a principal target of patent infringement suits,¹¹⁵ Apple's revenues and profits have broken many records and amazed the world.¹¹⁶ Its application ecosystem includes one million applications that are now collectively selling at a rate of \$10 billion per year.¹¹⁷ R&D is growing dramatically in a trend that both Apple and Google exemplify.¹¹⁸ Patents on financial services, which are by one estimate twenty-seven times more likely to lead to a lawsuit than are

point out that an "explosion of online services has added up to a substantial new revenue source for the creative industries," while "the growth of online services has been nothing short of remarkable" with digital music revenues up more than 20 times in the United States from 2004 to 2014, digital film distribution over the Internet up more than six times from 2006 to 2015, eBook sales or licenses up nearly 13% in 2011 alone, the digital sale or licensing of scientific-technical-mathematical journals up by \$1 billion from 2008 to 2011, and sales or licenses of digital video game content accounting for \$7.3 billion in revenue in 2011 alone in North America. *Id.* at 1; see also Information Infrastructure Task Force, *The Administration's Agenda for Action*, IBIBLIO (1993), <http://www.ibiblio.org/nii/NII-Agenda-for-Action.html> (noting rapid deployment of electronic networks, progress of software and digital technology, and emergence of digital audio interface devices, fax machines, satellite broadcasting, virtual libraries, and hypermedia magazines); see also Lawrence Strickling, Assistant Sec'y of Commerce for Comm'ns & Info., *Remarks of Assistant Sec'y Strickling at the Internet Policy Task Force Symposium*, NTIA (July 1, 2010), <http://www.ntia.doc.gov/speechestestimony/2010/opening-remarks-lawrence-e-strickling-assistant-secretary-commerce-communic-0>.

114. Google's cash and short-term investment assets on hand as of the spring of 2014 amounted to nearly \$60 billion, \$10 billion more than the previous spring's total, subsequent to the purchase of Motorola and its patents for \$12.5 billion. See *Google Inc.: NASDAQ: GOOG*, GOOGLE FINANCE, <http://www.google.com/finance?q=goog> (last visited Sept. 19, 2014).

115. Brief of Amici Curiae Electronic Frontier Foundation & Public Knowledge in Support of Remand at 8-9, *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, No. 2011-1301 (Fed. Cir. Dec. 7, 2012); see also Zak Islam, *Smartphone Industry Spent \$20 Billion on Patents in 2011*, TOM'S HARDWARE (Oct. 9, 2012), <http://www.tomshardware.com/news/Patents-Smartphone-Apple-Google-Motorola,18231.htm>.

116. Apple's gross profits rose from \$44 billion in fiscal 2011 to \$69 billion in fiscal 2012. See, e.g., *Apple Inc.: NASDAQ: AAPL Quotes & News*, GOOGLE FINANCE, http://www.google.com/finance?q=NASDAQ%3AAAPL&fstype=ii&ei=i_t4U5C8BqSsgfIsID4DA (last visited Sept. 19, 2014). Its income after tax rose by a slightly smaller amount, from \$34 billion in 2011 to \$56 billion in 2012. See *id.*

117. See Seth Fiegerman, *Apple's App Store Sales Topped \$10 Billion in 2013 for First Time*, MASHABLE (Jan. 7, 2014), <http://mashable.com/2014/01/07/apple-app-store-10-billion/>.

118. See Dan Lyons, *Will Apple's Focus on Profits Let Its Rivals Jump Ahead*, MIT TECH. REV. (Sept. 11, 2012), <http://www.technologyreview.com/news/429164/will-apples-focus-on-profits-let-its-rivals-jump-ahead> (predicting that in 2012, Apple would spend 2% of revenue, or \$3 billion, on research and development, while Google spent 10% of revenue on research and development, investing among other things in "tens of thousands of servers"); Timothy Prickett Morgan, *Google Mesa Data Warehouse Scales Like No Other*, ENTERPRISE TECH. (Aug. 14, 2014), <http://www.enterprisetech.com/2014/08/14/google-mesa-data-warehouse-scales-like/> (noting that in 2013, IBM spent \$6.2 billion on R&D and Google spent \$8 billion on R&D); Kline & Cassidy, *Stifling*, *supra* note 10 ("[Google] spent \$12.5 billion in 2011 to purchase an operating business with 17,000 software patents from Motorola . . .").

nonfinancial patents,¹¹⁹ did not prevent the financial services industry from expanding from \$1.2 trillion in 1993 to \$5 trillion in 2013.¹²⁰

Although application developers complain that PAEs file most infringement suits involving smartphone applications, the application development market is thriving. One association of such developers represents 100 corporations and 20,000 individuals.¹²¹ The output of application developers, licensors, marketers, and servicers has soared to \$53 billion in 2013, having created around 466,000 jobs in the United States alone since 2007.¹²² While Google and 10 other companies complain that PAE lawsuits may have cost them and other defendants

119. “Patent Reform: The Future of Innovation” Before the S. Comm. on the Judiciary, 107th Cong. (2001) (testimony of John A. Squires, Goldman, Sachs & Co.).

120. See Table 7.—Gross Domestic Product by Industry in Current Dollars and as a Percentage of Gross Domestic Product, 1992-1996, BUREAU ECON. ANALYSIS, http://www.bea.gov/scb/account_articles/national/1197gpo/table7.htm (last visited Nov. 21, 2014); Erich H. Strassner & David B. Wasshausen, *New Quarterly Gross Domestic Product by Industry Statistics*, BUREAU ECON. ANALYSIS 15 (May 2014), http://www.bea.gov/scb/pdf/2014/05%20May/0514_gdp-by-industry.pdf. The combined product of the financial, insurance, and real estate sectors rose from \$1.6 trillion in sales in 1998 to more than \$4.1 trillion in 2012. *The Impact of the 2012 Elections on the Real Estate Sector*, NJBIZ (Nov. 8, 2012), <http://www.njbiz.com/apps/pbcs.dll/article?AID=/20121108/NJ0705/121109883/The-Impact-of-the-2012-Elections-on-the-Real-Estate-Industry/&template=printart> (citing a \$2.9 trillion real estate sector in 2012); Philana Patterson, *Industry Move to One-Stop-Shopping Increases Competition in Financial Services*, BLACK COLLEGIAN (Dec. 9, 2000), <http://www.blackcollegian.com/industry-move-to-one-stop-shopping-increases-competition-in-financial-services/> (citing \$1.6 trillion in finance, insurance, and real estate revenue in 1998); *The Financial Services Industry in the United States*, SELECT USA, <http://selectusa.commerce.gov/industry-snapshots/financial-services-industry-united-states> (last visited Nov. 13, 2014) (citing approximately \$1.2 trillion in finance and insurance industry product in 2012). Including the notional value of certain sales of financial derivatives, the sales of the finance and insurance industries globally exploded from more than \$94 trillion in 1998 to \$708 trillion in 2011. Saule Omarova et al., *The United States: ‘With Freedom and Liberty for All, in BANKING SYSTEMS IN THE CRISIS: THE FACES OF LIBERAL CAPITALISM* 63 (Suzanne J. Konzelmann & Marc Fovargue-Davies eds., 2013). Hedge funds alone increased their assets under management by five times between 1999 and 2007, from about \$300 billion to \$1.6 billion. Susan Park, *Bankers Governing the Environment? Private Authority, Power Diffusion and the United Nations Environment Programme Finance Initiative*, in *THE DIFFUSION OF POWER IN GLOBAL GOVERNANCE: INTERNATIONAL POLITICAL ECONOMY* 165 (Stefano Guzzini & Iver Neuman eds., 2012). Corporate, foreign, and financial industry bonds outstanding increased in value from \$1.7 trillion in 1998 to \$5.3 trillion in 2010. See *Z.1 Financial Accounts of the United States*, FED. RES. (Sept. 18, 2014), <http://www.federalreserve.gov/releases/Z1/current/z1.pdf>. Government-backed and mortgage-backed securities held by financial institutions and national or regional banks increased in value from \$3.3 trillion in 1998 to \$7.6 trillion in 2010. See *id.*

121. See Jon Potter, President, Application Developers Alliance, *Comments of the Application Developers Alliance at the U.S. Department of Justice/Federal Trade Commission Workshop and Comment Proceeding on Patent Assertion Entities*, FED. TRADE COMM’N 1-2 (Apr. 5, 2013), <http://web.archive.org/web/20130919134339/http://www.ftc.gov/os/comments/pae/pae-0054.pdf>.

122. See Brief of Amici Curiae Public Knowledge & the Application Developers Alliance at 2, *Alice Corp. Pty, Ltd. v. CLS Bank Int’l*, No. 13-298 (U.S. 2014).

\$50 billion in 2012, up from \$29 billion in 2011,¹²³ these eleven firms' revenues and profits rose substantially during that period.¹²⁴ The software publishing industry grew rapidly in the years leading to the introduction of the Innovation Act, with revenue of \$116.6 billion in 2005 and \$138.7 billion in 2013.¹²⁵

Some empirical studies suggest that the short-term drop in share prices at firms sued for patent litigation is more severe than the average day's drop in prices, suggesting a level of harm from patent litigation that outweighs its benefits for the economy, particularly in the case of complex and software patents.¹²⁶ However, these studies do not appear to follow share prices and patents over the long term and focus on profits from patents rather than on a combined metric of profits and the total compensation of executives, researchers and programmers (an

123. These are Adobe, Blackberry, Cisco, Dell, Google, Intel, Intuit, Oracle, Rackspace, SAP, and Verizon. Matthew Tancian Coal. for Patent Fairness, *Comments on DOJ/FTC Workshop on Patent Assertion Entity Activities*, INTERNET ARCHIVE (Apr. 5, 2013), <http://web.archive.org/web/20130919141746/http://www.ftc.gov/os/comments/pae/pae-0055.pdf>.

124. Adobe's gross profit rose from \$3.8 to \$3.9 billion from fiscal 2011 to fiscal 2012. BlackBerry's gross profit fell from \$7 billion to \$3 billion between the fiscal year ending March 2012 and the one ending March 2013. Cisco's gross profit rose from \$28 to \$29 billion between fiscal 2011 and fiscal 2012. Dell's gross profit rose from \$11 to \$14 billion from fiscal 2011 to fiscal 2012. Google's gross profit rose from \$35 to \$40 billion between calendar 2011 and 2012. Intel's gross profit fell slightly from \$34 to \$33 billion between calendar 2011 and 2012. Intuit's gross profit rose from \$3 to \$3.2 billion between the fiscal year ending July 2011 and the one ending July 2012. Rackspace Hosting's gross profit rose from \$0.7 billion to \$1 billion between calendar 2011 and 2012. SAP's gross profit rose from \$10 to \$11 billion between calendar 2011 and 2012. Finally, Verizon's gross profit rose from \$65 to \$70 billion from calendar 2011 to 2012. The fall in BlackBerry's and Intel's profit was more than made up for by the other firms' increased profits. *Adobe Systems Incorporated: NASDAQ:ADBE*, GOOGLE FINANCE, <https://www.google.com/finance?q=adbe> (last visited Oct. 30, 2014); *BlackBerry Ltd: NASDAQ:BBRY*, GOOGLE FINANCE, <https://www.google.com/finance?q=bbry> (last visited Sept. 20, 2014); *Cisco Systems, Inc.: NASDAQ:CSCO*, GOOGLE FINANCE, <https://www.google.com/finance?q=cSCO> (last visited Oct. 30, 2014); *Dell Inc.: NASDAQ:DELL*, GOOGLE FINANCE, <https://www.google.com/finance?q=dell> (last visited Oct. 30, 2014); *Intel Corporation: NASDAQ:INTC*, GOOGLE FINANCE, <https://www.google.com/finance?q=intc> (last visited Oct. 30, 2014); *Intuit Inc.: NASDAQ:INTU*, GOOGLE FINANCE, <https://www.google.com/finance?q=intu> (last visited Oct. 30, 2014); *Rackspace Hosting, Inc.: NASDAQ:RAX*, GOOGLE FINANCE, <https://www.google.com/finance?q=rax> (last visited Oct. 30, 2014); *SAP SE (ADR): NYSE:SAP*, GOOGLE FINANCE, <https://www.google.com/finance?q=sap> (last visited Oct. 30, 2014); *Verizon Communications Inc.: NYSE:VZ*, GOOGLE FINANCE, <https://www.google.com/finance?q=vz> (last visited Oct. 30, 2014).

125. *Statistical Abstract of the United States, Table 1138. Software Publishers-Estimated Revenue by Source of Revenue and Software Type: 2005 to 2009*, U.S. CENSUS BUREAU (2012), <http://www.census.gov/compendia/statab/2012/tables/12s1138.pdf>; see also *Petition for a Writ of Certiorari* at 30, *Bilski v. Kappos*, 561 U.S. 593 (2008) (No. 08-964).

126. See BESSEN & MEURER, *supra* note 22, at 142-44. Software is defined as "merely a set of instructions capable of being executed by a computer." MANUAL OF PATENT EXAMINING PROCEDURE § 2106.IV.B.1(a) (8th ed. 2001).

expense).¹²⁷ It is not clear that such studies can account for the effect of patents on persons employed in R&D, on nonpublic companies, or on the long-term evolution of the patent industries, the economy, or R&D.

Judiciary Committee Chairman Bob Goodlatte and the other supporters of the Innovation Act and the AIA have been unable to identify problems in the patent system that would be suitable for the reforms contained in these laws. First, the AIA did not make it less expensive to file for patents, as the Congress and various officials who testified in favor of a first inventor to file system argued.¹²⁸ In addition to the general expense of filing more quickly, the many changes in law implemented by the AIA suggest that there will be costs as it “create[s] ‘heightened uncertainty for the rest of the decade’ because of its many ‘poorly written or ambiguous’ sections.”¹²⁹ Second, the Innovation Act is unlikely to reduce the number of frivolous patent lawsuits because most plaintiffs know that the main venues for patent litigation already require extensive disclosures of infringement contentions, or “claim charts,” not long after the filing of the complaint.¹³⁰ Third, PAEs could “circumvent fee-shifting by setting up shell entities that hold no assets besides the patents they are asserting.”¹³¹ If Lehman Brothers could go bankrupt, why not Intellectual Ventures? Thus, according to the former Undersecretary of Commerce and Director of the USPTO, David Kappos (and his coauthor), PAEs seem to be employed as a pretext to undermine the patent laws for all inventors.¹³²

127. See BESSEN & MEURER, *supra* note 22, at 142-44 (balancing litigation costs against “profits from patents,” “patent profits for . . . public firms,” and “profits from United States patents only”).

128. See Jones, *supra* note 97 (concluding that his experience with approaching effective date of AIA suggests that there is a “race” to file all significant inventions, rather than to file only commercializable inventions as in the pre-AIA era). According to Jones, “Inventors are rushing to file patent applications ahead of a change in the U.S. patent system that is likely to make it more expensive and difficult to win protection for new ideas.” *Id.*

129. Gen. Patent Corp., *The America Invents Act and General Patent’s Contingency Patent Enforcement Business Model*, GEN. PAT. CORP. (Nov. 2011), <http://www.generalpatent.com/america-invents-act-and-general-patent%E2%80%99s-contingency-patent-enforcement-business-model>.

130. Eric C. Pai & Colette R. Verkuil, *Patent Troll Legislation Stuck in Fee-Shifting Debate*, LEXOLOGY (Apr. 16, 2014), <http://www.lexology.com/library/detail.aspx?g=f582cb12-fb9e-4886-9879-5cd0d81ec50d>.

131. *Id.*

132. David J. Kappos, *Let’s Not Miss This Opportunity for Consensus-Based Patent Reform*, HILL (Dec. 5, 2013, 9:00 AM), <http://thehill.com/opinion/op-ed/192063-lets-not-miss-this-opportunity-for-consensus-based-patent-reform>.

Moreover, every federal court has long had the power to stay litigation involving invalid patents¹³³ and to award fees for baseless and bad-faith filings.¹³⁴ Infringers who are truly being threatened with an invalid patent may simply wait to be sued, file to stay the case, and ask the USPTO to review the patent's validity. As described below, there are manifold grounds on which to challenge patent validity. Indeed, courts have begun staying patent litigation pending IPR at an alarming rate.¹³⁵

133. *Grobler v. Sony Computer Entertainment America LLC*, No. 12-cv-01526-JST (N.D. Cal. July 29, 2013); *Sonics, Inc. v. Arteris, Inc.*, No. C 11-05311 SBA, 2013 WL 503091, at *1 (N.D. Cal. Feb. 8, 2013); *SoftView LLC v. Apple Inc.*, No. 10-389-LPS, 2012 WL 3061027, at *3 (D. Del. July 26, 2012); *Convergence Techs. (USA), LLC v. Microloops Corp.*, No. 5:10-cv-02051 EJD, 2012 WL 1232187, at *1 (N.D. Cal. Apr. 12, 2012); *In re Google*, No. 5:08-cv-03172-RMW, Dkt. No. 505, at 16-17 (N.D. Cal. Aug. 31, 2011); *Tierravision, Inc. v. Google, Inc.*, No. 11cv2170DMS(BGS), 2012 WL 559993, at *1 (S.D. Cal. Feb. 21, 2012); *Affinity Labs of Tex. v. Apple Inc.*, No. 09-04436 CW, 2010 WL 1753206 (N.D. Cal. Apr. 29, 2010); *j2 Global Comm'ns, Inc. v. Venali, Inc.*, No. CV 04-01172 DDP (AJWx), 2009 WL 8236041 (C.D. Cal. Apr. 23, 2009); *Tse v. Apple Inc.*, No. C 06-06573 SBA, 2007 WL 2904279 (N.D. Cal. Oct. 4, 2007); *IMAX Corp. v. In-Three, Inc.*, 385 F. Supp. 2d 1030, 1033 (C.D. Cal. 2005).

134. 35 U.S.C. § 285 (2012); 28 U.S.C. § 1927 (2012); FED. R. CIV. P. 11 advisory committee's note (1993). The federal courts may have inherent power to punish extortionate, illegitimate, or bad-faith claims with attorney's-fee awards. See *Hall v. Cole*, 412 U.S. 1, 15 (1973) (“[B]ad faith’ may be found, not only in the actions that led to the lawsuit, but also in the conduct of the litigation.”); *Am. Postal Workers’ Union v. U.S. Postal Serv.*, 711 F. Supp. 2d 38, 40-41 (D.D.C. 2010) (“Bad faith in conduct giving rise to the lawsuit may be found where a party, confronted with a clear statutory or judicially-imposed duty towards another, is so recalcitrant in performing that duty that the injured party is forced to undertake otherwise unnecessary litigation to vindicate plain legal rights.” (quoting *Am. Hosp. Ass’n v. Sullivan*, 938 F.2d 216, 219 (D.C. Cir. 1991) (internal quotation marks omitted))); *Sanchez v. Rowe*, 870 F.2d 291, 294 (5th Cir. 1989) (“[T]he requisite bad faith may be found only in bringing an action or causing an action to be brought.” (citing 6 JAMES WM. MOORE ET AL., MOORE’S FEDERAL PRACTICE ¶ 54.78[3], at 54-506 (2d ed. 1987))); *Int’l Union of Petrol. & Indus. v. W. Indus. Maint., Inc.*, 707 F.2d 425, 428 (9th Cir. 1983) (“It is clear that bad faith supporting an award of attorneys’ fees may be found in conduct that led to the lawsuit or in conduct occurring during the course of the action.”); see also *Marquis Theatre Corp. v. Condado Mini Cinema*, 846 F.2d 86, 93 (1st Cir. 1988) (describing lower court’s “equitable power to award, in its discretion, attorney’s fees, when, as the court found here, ‘an unfounded . . . defense is . . . maintained in bad faith, vexatiously, wantonly, or for oppressive reasons’” even though “the defense was not unfounded as to all of its particulars”) (citing, inter alia, 6 MOORE, *supra*, at 54-499; *Hall*, 412 U.S. at 4-5).

135. Katherine E. Colvin, *The AIA: Reviewing the First Year of “Inter Partes” Review*, MONDAQ (Dec. 31, 2013), <http://www.mondaq.com/unitedstates/x/283758/Patent/The+AIA+Reviewing+the+First+Year+Of+Inter+Partes+Review> (“More than 60 percent of IPR requests in the first six months were connected to patents already being litigated; more than half of those litigations were stayed by the district courts pending IPR.”); Thomas Bean et al., *How Post-Issuance Patent Challenges Affect Concurrent Litigation*, LAW.COM (Apr. 10, 2014), <http://www.law.com/sites/articles/2014/04/10/how-post-issuance-patent-challenges-affect-concurrent-litigation/?sreturn=20140415020417> (“For example, through April 2, 2014, district courts in the Third Circuit granted motions for litigation stays based on IPR proceedings at a rate of 81 percent (38 motions granted, 9 denied.”); Jonathan R.K. Shroud, *Will an IPR Result in a Stay of Co-Pending Litigation?*, AIA BLOG (May 17, 2013), <http://www.aiablog.com/post-grant-proceedings/will-an-ipr-result-in-a-stay-of-co-pending-litigation/> (“Since September 16, 2012, when the procedure became available, challengers have filed 234 requests for inter partes review[, and]

“*Inter partes* reexaminations—unlike *ex parte* reexaminations—are guaranteed to finally resolve at least some issues of validity because the requesting party is barred from seeking district court review on any grounds that it could have raised”¹³⁶

Arguably, the better view is to deny a stay when it appears that a USPTO decision on reexamination or IPR, plus an appeal by the losing side, may take years.¹³⁷ A clear tactical disadvantage to the patentee, justifying denial of a stay pending USPTO action, includes marketplace harm due to direct competition that is not compensable by a damages award.¹³⁸ Such marketplace harm may occur when the value of a royalty the patentee may demand from licensees is eroded due to infringement.¹³⁹ When such a lengthy delay is probable, the destruction or loss of evanescent evidence is a near certainty.¹⁴⁰ A stay can be particularly problematic when a filing for a stay shortly after discovery disputes have arisen indicates that the stay is being sought in order to gain a tactical advantage, which is disfavored.¹⁴¹ Furthermore, stays can be problematic

more than 70% of all requests for stay have been granted to date.”); *see also* *Statistics for Orders for Motions To Stay in View of Pending IPR or CBM as of April 10, 2014*, KENYON & KENON IPR BLOG (Apr. 2014), <http://interpartesreviewblog.com/wp-content/uploads/2014/04/IPR-CBM-Stay-Motion-Stats-21.pdf>.

136. *Avago Techs. Fiber IP (Sing.) Pte. Ltd. v. IPtronics Inc.*, No. 10–CV–02863-EJD, 2011 WL 3267768, at *5 (N.D. Cal. July 28, 2011).

137. *See* *Stryker Corp. v. Monster Medic, Inc.*, No. 1:09-CV-1142, 2010 WL 2026692, at *2 (W.D. Mich. May 20, 2010).

138. *See* *Tric Tools Inc. v. TT Techs., Inc.*, No. 12-CV-03490-YGR, 2012 WL 5289409, at *1-2 (N.D. Cal. Oct. 25, 2012).

139. *See* *Celsis In Vitro, Inc. v. CellzDirect, Inc.*, 664 F.3d 922, 930 (Fed. Cir. 2012) (upholding the conclusion that irreparable harm was present due to evidence of “price erosion, damage to ongoing customer relationships, loss of customer goodwill (*e.g.*, when an effort is later made to restore the original price), and loss of business opportunities”); *Novozymes A/S v. Genencor Int’l, Inc.*, 474 F. Supp. 2d 592, 612 (D. Del. 2007) (holding that patentee’s loss of business opportunity to license patent at higher rate due to noninfringement absent a license is irreparable injury); *see also* *Fresenius Medical Care Holdings, Inc. v. Baxter Int’l, Inc.*, No. C03-1431 SBA, 2008 WL 928496, at *3 (N.D. Cal. Apr. 4, 2008) (“It is well-established that harm to reputation as an innovator is an injury ‘not compensable by damages.’”), *aff’d in part, rev’d in part sub nom.* *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1302 (Fed. Cir. 2009).

140. As one court has held, when reexamination by the PTO consumes nineteen months or more in which discovery could proceed, the “fear that evidence . . . will become more difficult to access as more time passes is well-founded.” *Ultra Prods., Inc. v. Antec, Inc.*, No. C09-04255RS, 2010 WL 1688538, at *3 (N.D. Cal. Apr. 26, 2010).

141. *See* *Esco Corp. v. Berkeley Forge & Tool, Inc.*, No. C 09-1635 SBA, 2009 WL 3078463, at *3 n.1 (N.D. Cal. Sept. 28, 2009) (stating how the parties disputed scheduling of Rule 26(f) conference); *see also* *Affinity Labs of Tex. v. Apple Inc.*, No. 09-04436 CW, 2010 WL 1753206, at *2 (N.D. Cal. Apr. 29, 2010) (ruling that a motion to stay filed a year after the complaint was served should be denied because “further delay will only increase the likelihood of loss of evidence”); *Ultra Prods.*, 2010 WL 1688538, at *3 (denying a stay where “witness availability, and memory relating to the relevant 2003-04 timeframe will become more difficult to access as more time passes”); *Optimumpath, L.L.C. v. Belkin Int’l, Inc.*, No. 09-01398 CW, 2010

when the parties have made a “large investment in preparation to produce a mass of documents, most of which work would have to be reduplicated later were a stay now granted.”¹⁴² In one case, 30,000 pages had been produced by the defendant, who opposed the stay.¹⁴³ Other courts have held that a significant investment in discovery weighs against a stay.¹⁴⁴

A less prejudicial way of making litigation more efficient is to encourage the parties to narrow the claims and defenses they press at summary judgment and trial.¹⁴⁵ One appeal to the Federal Circuit on invalidity issues narrowed by the parties themselves is a simpler method than two or more such appeals after a stay is granted and appealed, and the USPTO invalidation outcome is then appealed.¹⁴⁶ Another alternative is to delay the claim construction hearing until the USPTO has time to rule on the IPR or other postgrant proceeding.¹⁴⁷

Finally, it is important to note that uncertainty and conflicting claims are by no means unique to the patent system or NPEs in a way that would justify the Innovation Act. Alienable property interests inherently give rise to large numbers of ownership disputes, invalid filings, and contradictory rulings. With respect to foreclosures of real property, a number of cases have involved plaintiffs who did not even have standing and submitted unsigned or even forged documents to attempt to paper over defects in their claims.¹⁴⁸ Meritless filings of liens

WL 761285, at *3 (N.D. Cal. Mar. 3, 2010) (denying a stay where it might lead to “further loss of information” and a “tactical advantage” (quoting *Telemac Corp. v. Teledigital, Inc.*, 450 F. Supp. 2d 1107, 1111 (N.D. Cal. 2006))).

142. *Comcast Cable Commc’ns Corp. v. Finisar Corp.*, CV No. 06-04206 WHA, 2007 WL 1052883, at *2 (N.D. Cal. Apr. 5, 2007).

143. *Id.* at *1.

144. In *Amphenol T&M Antennas, Inc. v. Centurion International, Inc.*, the court denied a motion for a stay pending reexamination because “[s]ubstantial time and expense [had already] been invested in the [current] litigation.” No. 00 C 4298, 2001 U.S. Dist. LEXIS 13795, at *7 (N.D. Ill. Sept. 5, 2001), *further proceedings* at 69 U.S.P.Q.2d 1798 (N.D. Ill. Jan. 17, 2002). “The likelihood that some or all of the patent will be invalidated as a result of the reexamination proceedings is impossible to calculate with any reasonable degree of certainty, but statistically, it is not great.” *Id.* at *2; *see also* *Ingro v. Tyco Indus., Inc.*, 227 U.S.P.Q. (BNA) 69 (N.D. Ill. 1985) (expressing similar doubt that reexamination will solve issues presented by litigation).

145. *See In re Google Litig.*, No. CV 08-3172 RMW, ECF No. 208, slip op. at 4-5 (N.D. Cal. Oct. 15, 2010).

146. 35 U.S.C. §§ 141, 319 (2012).

147. *Avago*, 2011 WL 3267768, at *6 (denying stay because if claim construction was put off until 2012, the case could “proceed in parallel with the reexaminations for some time without any worry that the Court is expending resources on issues that may eventually be moot”).

148. *See* Matthew D. Weidner & Michael Fuino, *Foreclosing in a Hurricane: Florida Courts Struggle to Deal with a Crisis of Epic Proportions*, 41 STETSON L. REV. 679, 716-17 (2012) (describing the problem of “robo-signing” mortgage documents in Florida); *Cromarty v. Wells Fargo Bank, N.A.*, 110 So. 3d 988 (Fla. Dist. Ct. App. Apr. 17, 2013) (reversing a lower

and other property claims under the Uniform Commercial Code have exploded. “[T]he UCC does not permit clerks to reject filings that are clearly bogus,” one legal journalist explained.¹⁴⁹

Similarly, “copyright trolls” have contributed to a fifteen-fold increase in the number of Americans facing federal copyright litigation in a five-year period. Litigants with questionable standing to sue have imperiled actual copyright owners by making dubious legal arguments about the scope of fair use, among other matters.¹⁵⁰ Moreover, many if not most copyright-related Internet “takedown notices are also sent automatically and without verification that the entity being sent the notice in fact has engaged in any kind of activity that could remotely be considered infringement.”¹⁵¹ Meanwhile, dubious trademark claims have multiplied so rapidly that an empirical study of trademark case outcomes found that judges awarded damages less than 6% of the time.¹⁵²

B. Highlighting the Role of Patent Licensors in the Research and Development Process

The Innovation Act may interrupt what is now a thriving R&D ecosystem in the United States, particularly when it comes to Internet services. The American Intellectual Property Law Association opposes the Innovation Act’s fee-shifting and particularized pleading provisions on the grounds that they will deter legitimate infringement actions, particularly by small inventors, and will shift the burden of proof to the patent owner rather than the alleged infringer to show that a complaint was justified and/or that awarding the prevailing defendant’s fees is unfair or unwarranted.¹⁵³ This type of response to PAEs, NPEs, and patent trolls may make it impossible to obtain inexpensive or timely relief in court if the patent owner is “a small company run by the inventor of the technology . . . , whose commercialization efforts were frustrated by

court’s ruling in favor of a large commercial bank that filed for foreclosure despite “no proof” that “it held the note and was entitled to enforce the note at the time it filed suit”).

149. See Lorelei Laird, *Paper Terrorists: “Sovereign Citizens” Plaster Courts with Bogus Legal Filings—and Some Turn to Violence*, A.B.A. J., May 2014, at 52, 54, 57.

150. See, e.g., Eriq Gardner, *The Righthaven Experiment*, A.B.A. J., May 2012, at 34, 37-38.

151. Lyda Pallas Loran, *Deterring Abuse of the Copyright Takedown Regime by Taking Misrepresentation Claims Seriously*, 46 WAKE FOREST L. REV. 745, 747 (2011).

152. Kenneth L. Port, *Trademark Extortion: The End of Trademark Law*, 65 WASH. & LEE L. REV. 585, 611 (2008).

153. *Id.*

rampant infringement.”¹⁵⁴ As the General Counsel of the American Council of Education has written:

H.R. 3309 is worded more broadly than what is required to crack down on trolls and their frivolous lawsuits, and actually threatens to undermine the overall patent system and diminish institutions’ capacity for sharing results of innovative research.

One of the main problems with the House bill is that it would make patent holders potentially liable for expensive court costs and attorney fees for the other side if they lose a case [B]ecause universities typically don’t have large litigation budgets, these provisions could make them think twice before risking getting involved in a lawsuit. . . . It also could hinder many investors and companies from commercializing the innovations created by research institutions.¹⁵⁵

The Innovation Act burdens the effective enforcement of patents, income from patents, and gains from innovation, according to the Pharmaceutical Research and Manufacturers of America.¹⁵⁶

An emerging line of scholarship and commentary highlights the role of patent licensors in accelerating innovation. The first Congress rejected a mandate that patentees manufacture commercial versions of their inventions prior to or as a prerequisite to enforcing their rights.¹⁵⁷ American Bell Telephone, for example, licensed seventy-three patents belonging to persons outside the enterprise¹⁵⁸ and filed or defended hundreds of patent lawsuits, dwarfing the number involving

154. *Medien Patent Verwaltung AG v. Warner Bros. Entm’t*, No. 10 Civ. 4119, 2014 U.S. Dist. LEXIS 12360, at *2 (S.D.N.Y. Jan. 29, 2014); *see also* *Cordance Corp. v. Amazon.com, Inc.*, 730 F. Supp. 2d 333, 339-41 (D. Del. 2010) (denying relief to patentee that had financial difficulties prior to defendant’s infringement); *Amgen, Inc. v. F. Hoffmann-La Roche Ltd.*, 581 F. Supp. 2d 160, 210 (D. Mass. 2008), *aff’d in part, vacated in part*, 580 F.3d 1340 (Fed. Cir. 2009) (holding that courts increasingly “decline requests for injunctive relief where the plaintiff” is an NPE); *Advanced Cardiovascular Sys., Inc. v. Medtronic Vascular, Inc.*, 579 F. Supp. 2d 554, 558 (D. Del. 2008) (“Courts awarding permanent injunctions typically do so under circumstances where plaintiff practices its invention and is a direct market competitor. [Formerly, the rule had been that there can be] irreparable harm absent direct competition.”); *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1338 (Fed. Cir. 2012); *see also* *eBay Inc. v. MercExchange*, 547 U.S. 388, 393 (2006) (stating that those who license rather than practice their inventions may deserve injunction against infringement anyway).

155. Meloy, *supra* note 1.

156. Letter from Chester (Chip) Davis, Jr., Exec. Vice President, Advocacy & Member Relations, Pharm. Research & Mfrs. of Am., to the Hon. Bob Goodlatte & the Hon. John Conyers, Jr., H. Judiciary Comm. (Nov. 13, 2013), *available at* <https://www.scribd.com/doc/185653003/Pharmaceutical-Research-and-Manufacturers-of-America-PhRMA-Innovation-Act-H-R-3309>.

157. *See* David Kline & Bernard J. Cassidy, *Are Non-Practicing Entities the Problem?*, IPWATCHDOG (Apr. 9, 2014, 10:00 AM), <http://www.ipwatchdog.com/2014/04/09/myths-of-the-patent-wars-are-non-practicing-entities-the-problem/> [hereinafter Kline & Cassidy, *Problem*].

158. *See id.*

smartphones.¹⁵⁹ It is said that the Wright Brothers failed at commercializing the biplane and had to resort to the courts to receive a reward for their inventive efforts.¹⁶⁰ A bankrupt Nortel Networks auctioned off patent rights for a cool \$4.5 billion in 2011, after Apple agreed to pay Nokia \$400 million or more annually for the right to use certain smartphone and other inventions.¹⁶¹ Kodak earned tens of millions of dollars in 2013 after filing for bankruptcy in 2012 and exiting the digital camera business.¹⁶²

There is little evidence of an unprecedented rate of patent litigation making software innovation unprofitable. As U.S. innovation sped up and the country overtook Britain in technological leadership, the rate of patent cases filed per issued patent rose to double its current rate.¹⁶³ Adjusted for GDP, the number of patents has changed very little from 1963, while the number of patent trials per year is similar to the level in 1983.¹⁶⁴

The R&D process is extraordinarily healthy in the United States at present. Global R&D spending is on track to exceed \$2 trillion in this decade, in part because global patent licensing revenue has risen to \$500 billion.¹⁶⁵ As the Federal Communications Commission (FCC) declared in 2010, the Internet “has proven to be an enormous engine for market innovation, economic growth, social discourse, and the free flow of ideas.”¹⁶⁶ In 2006, Lawrence Lessig pointed out that with modern

159. See Kline & Cassidy, *Myths*, *supra* note 10.

160. See Gene Quinn, *Exclusive with Ray Niro: The Man They Call the Patent Troll*, IPWATCHDOG (July 23, 2013), <http://www.ipwatchdog.com/2013/07/23/exclusive-with-ray-niro-the-man-they-call-the-patent-troll/>; see also Kline & Cassidy, *Stifling*, *supra* note 10 (“The second problem with their logic is that the Founders consciously designed the patent system to encourage . . . *incremental* invention so that ordinary people, using only the basic technical skills possessed by average citizens, could join in rapidly developing the economy from the ground up. . . . Or to quote Thomas Jefferson himself: ‘A smaller [invention], applicable to our daily concerns, is infinitely more valuable than the greatest which can only be used for great objects.’”); Kline & Cassidy, *Problem*, *supra* note 157 (“[Congress] wrote the first patent law expressly to facilitate the licensing and sale of patent rights, thereby creating the world’s first patent licensing industry and market in new technology The result, as Jefferson would write 13 years later, has ‘given a spring to invention beyond my conception.’”).

161. Robert Cyran, *Pricey Nortel IP Shows Fear of Google’s Android*, REUTERS BREAKINGVIEWS (July 1, 2011), <http://blogs.reuters.com/breakingviews/2011/07/01/pricy-nortel-ip-shows-fear-of-googles-android/>.

162. See *Form 10-Q Quarterly Report*, *supra* note 39, at 8, 47, 52.

163. See Kline & Cassidy, *Myths*, *supra* note 10.

164. *Id.*

165. See *supra* note 69 and accompanying text.

166. *In re Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications*, 23 FCC Rcd. 13028, 13040 n.94 (2008), *order vacated sub nom. Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010) (citing *Net Neutrality*:

computers, the cost of producing a “television” show had been reduced to \$1,500.¹⁶⁷ Since then, it has become possible to create a television program with a \$100 Android device and several video editing applications available for less than \$10 apiece.¹⁶⁸ In 2010, the average total cost of developing an iPhone application that could sell an average of 100,000 copies was less than \$6,500.¹⁶⁹ According to the founder of venture capital marketplace AngelList, there is an “explosion of startups” made possible by the efficiency of the Internet ecosystem, which enables hundreds of new startups to seek additional financing daily.¹⁷⁰

C. Reaffirming Settled Law and Legitimate Expectations Under the Patent Act of 1952

1. Abstract Method or Process Patents

While there is no basis for limiting the availability of patents in ways that Congress has not legislated or that the Constitution does not dictate, there are limits that Congress has clearly set forth.¹⁷¹ The Patent Act of 1952, as amended, “protects the process or method performed by

Hearing Before the S. Comm. on Commerce, Sci., & Transp., 109th Cong. 7 (2006) (statement of Vinton G. Cerf, Vice President, Chief Internet Evangelist, Google, Inc.).

167. See Lawrence Lessig, *Creative Economies*, 2006 MICH. ST. L. REV. 33, 73; TED Talks, *Lawrence Lessig: Laws That Choke Creativity*, YOUTUBE (Nov. 15, 2007), <http://www.youtube.com/watch?v=7Q25-S7jzgs>. I place “television” in quotation marks because the show would in the vast majority of cases not appear on cable, broadcast, or satellite television.

168. See Matt Granite, WKYC TV, Cleveland, *Save of the Day: Top Android Tablet Under \$100*, USA TODAY (Mar. 27, 2014, 10:12 AM EST), <http://www.usatoday.com/story/money/personalfinance/2014/03/27/save-of-the-day-top-android-tablet-under-100/6951623/>; Krishna Pêrmi, *Best Unlocked Smartphone Under \$100 of 2014*, REVIEWGIST (Aug 2, 2013), <https://www.reviewgist.com/best-unlocked-smartphone-under-100>; see also *6 Popular Video Editing Apps for Android*, INMAN NEWS (July 14, 2011), <http://inman.com/2011/07/14/6-popular-video-editing-apps-Android>; Eric Larson, *10 Excellent Video Editing Apps*, MASHABLE (June 5, 2013), <http://mashable.com/2013/06/05/video-edit-apps/>; J.R. Raphael, *Review: 5 Video Editing Apps for Android*, COMPUTERWORLD (Mar. 7, 2014), <http://www.computerworld.com/article/2488294/android/review-5-video-editing-apps-for-android.html>; *Winners for 2011 in Best Video Editing App*, BEST APP EVER AWARDS (2011), <http://bestappever.com/awards/2011/winner/vid>; *Music & Video-Android Apps*, GOOGLE PLAY, http://play.google.com/store/apps/category/MEDIA_AND_VIDEO?feature=categorynav (last visited Sept. 20, 2014).

169. Alex Ahlund, *iPhone App Sales, Exposed*, TECHCRUNCH (May 16, 2010), <http://techcrunch.com/2010/05/16/iphone-app-sales-exposed/>.

170. Evelyn M. Rusli, *AngelList's Newest Experiment: A \$25 Million Fund To Invest in Angel Investors*, DIGITS, WALL ST. J. (Apr. 15, 2014), <http://blogs.wsj.com/2014/04/15/angel-lists-newest-experiment-a-25-million-fund-to-invest-in-angel-investors/>. Commentators began speaking of the “Internet ecosystem” in the 1990s, as an evolving sphere of creation and innovation where new species and the population as a whole grows at an ever-rising rate. See Haig Hovaness et al., *Community and Market Formation: Where Will Business Occur?*, in THE HARVARD CONFERENCE ON THE INTERNET & SOCIETY 429 (O'Reilly & Assocs. ed., 1997).

171. See *Diamond v. Diehr*, 450 U.S. 175, 182 (1981).

a computer program [if it is] novel, nonobvious, and useful,” just as the Copyright Act of 1976 protects the creative expression that describes or illustrates such a useful process.¹⁷² Thus, in one important case, the United States Supreme Court held that a computer program designed to work in conjunction with a rubber molding machine was patentable because the output of the program had a useful and potentially novel result in curing the rubber efficiently.¹⁷³

The 1952 Act did not envisage the patenting of an idea or a patent that would preempt the use of “the basic tools of scientific and technological work,” restricting patents to limited applications of algorithms.¹⁷⁴ By the time it was enacted, the Supreme Court had rejected abstract patents on methods and processes such as telegraphy and telephony,¹⁷⁵ and the lower courts had ruled inventions unpatentable when they were directed solely to a better way of doing something that might otherwise be done mentally, or with pencil and paper.¹⁷⁶

One example is a software data structure that may have been a unique fit with one or more algorithms insofar as it “arrange[d] various information needed to solve the shortest path [between two points] problem.”¹⁷⁷ The Federal Circuit’s opinion on this patent, finding a data structure claim insufficiently “physical” to be patentable, was later withdrawn and the case remanded for reconsideration in light of proposed USPTO guidelines for software patents.¹⁷⁸

172. *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 839 (Fed. Cir. 1992).

173. *See Diehr*, 450 U.S. at 175 n.5, 183, 187.

174. *Gottschalk v. Benson*, 409 U.S. 64, 67 (1972).

175. *The Telephone Cases*, 126 U.S. 1, 531-34 (1888) (holding that use of electricity to speak over telephones, apart from concrete method of doing so, was not patentable); *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 113 (1853) (holding that use of electricity to transmit signs or symbols at a distance is not patentable apart from concrete method of doing so).

176. *See Bilski v. Kappos*, 130 S. Ct. 3218, 3245-46 (2010) (Stevens, J., concurring in judgment) (citing *Loew’s Drive-In Theatres, Inc. v. Park-In Theatres, Inc.*, 174 F.2d 547, 552 (1st Cir. 1949) (“[A] system for the transaction of business, such, for example, as the cafeteria system for transacting the restaurant business . . . however novel, useful, or commercially successful is not patentable apart from the means for making the system practically useful, or carrying it out.”); *Hotel Sec. Checking Co. v. Lorraine Co.*, 160 F. 467, 469 (2d Cir. 1908) (“A system of transacting business disconnected from the means for carrying out the system is not, within the most liberal interpretation of the term, an art.”); *Guthrie v. Curlett*, 10 F.2d 725, 726 (2d Cir. 1926) (describing a method of abbreviating rail tariff schedules and stating that, even “if it be novel, [it] is not the kind of art protected by the patent acts”); *In re Patton*, 127 F.2d 324, 327-328 (C.C.P.A. 1942) (“[A] system of transacting business, apart from the means for carrying out such system [is not patentable], nor is an abstract idea or theory, regardless of its importance or . . . ingenuity”); *U.S. Credit Sys. Co. v. Am. Credit Indem. Co.*, 53 F. 818, 819 (C.C.S.D.N.Y. 1893) (holding that a “method of insuring against loss by bad debts” was not patentable)).

177. *In re Trovato*, 42 F.3d 1376, 1377 (Fed. Cir. 1994), *vacated and opinion withdrawn*, 60 F.3d 807 (Fed. Cir. 1995).

178. *See id.*

The USPTO guidelines, which went into effect in 1996, created certain presumptions as to statutory subject matter. One commentator summarized these presumptions as rendering patentable data structures “claimed as being embodied in computer-readable media.”¹⁷⁹ Another presumption was that the selection and presentation of data “independent of any physical element” are not patentable.¹⁸⁰ Assuming embodiment in a computer-readable media (as opposed to a claim for data structures per se), the USPTO guidelines therefore distinguished between patentable “functional descriptive material” and nonpatentable “nonfunctional descriptive material.”¹⁸¹ What divides the two is whether the data structure is “merely stored and read by a computer without creating any functional relationship” or change in the computer’s operation, like music on a CD.¹⁸²

The Federal Circuit has analyzed the relationship of data structures with displays by or operations conducted within physical hardware. It has developed a body of precedent holding data structures to be unpatentable unless they imply a physical memory arrangement. One case held that where a claim’s “data structures impose a physical organization on the data,” thereby “provid[ing] increased computing efficiency,” the district court had erred in holding the invention unpatentable based on the printed matter doctrine.¹⁸³ Another case ruled that where a claim on a software data structure did not limit itself to a particular physical memory arrangement, it did not qualify for patent protection as a machine.¹⁸⁴

In 1998, the Federal Circuit confirmed that abstract claims, without concrete and useful results, are unpatentable.¹⁸⁵ In 2006, the Congressional Research Service reported that 20,000 software patents were being issued annually, up from 5,000 in 1990.¹⁸⁶ In response to

179. Melvin C. Garner et al., *Advanced Claim Drafting and Amendment Writing Workshop for Electronic and Computer-related Subject Matter*, in *ADVANCED CLAIM AND AMENDMENT WRITING* 229, 271 (PLI 1997).

180. *See id.* at 268.

181. *See id.* at 272.

182. *Id.*

183. *In re Lowry*, 32 F.3d 1579, 1583 (Fed. Cir. 1994).

184. *In re Warmerdam*, 33 F.3d 1354, 1361 (Fed. Cir. 1994).

185. *See, e.g., State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc), *aff'd Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

186. Wendy H. Schacht, *CRS Patent Reform for Congress: Patent Reform: Issues in the Biomedical and Software Industries*, *FEDERATION AM. SCIENTISTS* (Apr. 7, 2006), <http://www.fas.org/sgp/crs/misc/RL33367.pdf>.

claims that too many abstract patents were being issued, the USPTO,¹⁸⁷ the Supreme Court, and the Federal Circuit began to rein in such claims.¹⁸⁸ In 2014, the Supreme Court held that a process applying an abstract economic idea to electronic recordkeeping functions available on a generic computer was unpatentable under § 101 because it did not seek to change how the computer functioned.¹⁸⁹ In *Ultramercial, LLC v. Hulu, LLC*, a panel of the Federal Circuit distinguished between abstract ideas implemented on a general-purpose computer and the “intricate and complex computer programming” in the specification of the plaintiff, which reflected a concrete and innovative technology.¹⁹⁰ The Supreme Court remanded for consideration of its 2014 decision.¹⁹¹

Furthermore, efficient reform may include reducing the duration of software or Internet patents to five years. Jeff Bezos of Amazon.com and Lawrence Lessig of the Berkman Center for Internet and Society at Harvard Law School proposed this reform more than a decade ago.¹⁹² Economists and legal economists have argued for many years that adjusting the patent term is a way to balance the benefits and costs of protection.¹⁹³ The Framers of the Constitution set the U.S. patent term at

187. See, e.g., *Ex parte* Ciprian Agapi, No. 2011-01208, 2013 WL 6039024 (P.T.A.B. Nov. 12, 2013); *SAP Am., Inc. v. Versata Dev. Group, Inc.*, No. CBM2012-00001 (P.T.A.B. June 11, 2013); *In re* Bilski, 545 F.3d 943; MANUAL OF PATENT EXAMINING PROCEDURE, *supra* note 126, § 2106; *id.* § 2106 (8th ed. 4th rev. 2008); *id.* § 2106 (8th ed. 9th rev. 2012).

188. See *Bilski*, 130 S. Ct. 3218 (holding that a patent claim without a computer limitation on a method for hedging the risk of commodity transactions in various ways, which was previously done mentally or on pen and paper, was an unpatentable abstract idea); *Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323 (Fed. Cir. 2011) (finding an invention directed to seeking authorization to view copyrighted material over the Internet, by means of viewing advertisement in exchange for access to said material, to be patentable), *vacated sub nom.* *WildTangent v. Ultramercial, LLC*, 132 S. Ct. 2431 (2012) (mem.) (citing *Mayo Collaborate Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012)), *remanded sub nom.* *Ultramercial Inc. v. Hulu, LLC*, 722 F.3d 1335 (Fed. Cir. 2013) (finding the invention not to be abstract and unpatentable), *vacated sub nom.* *WildTangent, Inc. v. Ultramercial, LLC*, 134 S. Ct. 2870 (2014) (mem.) (citing *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014)), *remanded sub nom.* *Ultramercial, Inc. v. Hulu, LLC*, No. 2010-1544, 2014 WL 5904902 (Fed. Cir. 2014); *CLS Bank Int'l v. Alice Corp.*, 717 F.3d 1269, 1290 (Fed. Cir. 2013) (en banc) (reasoning that a patent claim directed to confirming accounting results by third-party escrow was an unpatentable abstract idea because it claimed only “a handful of computer components, in generic, functional terms that would encompass any device capable of performing the same ubiquitous calculation, storage, and connectivity functions”), *aff'd*, 134 S. Ct. 2347 (2014); Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v. Kappos*, 75 Fed. Reg. 43,922, 43,922-26 (July 27, 2010).

189. *Alice*, 134 S. Ct. 2347.

190. 722 F.3d at 1350, *vacated sub nom.* *WildTangent*, 134 S. Ct. 2870.

191. *WildTangent*, 134 S. Ct. 2870.

192. See LAWRENCE LESSIG, THE FUTURE OF IDEAS 359-60 (2001).

193. See Richard Gilbert & Carl Shapiro, *Optimal Patent Length and Breadth*, 21 RAND J. ECON. 106, 106-12 (1990); Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*,

fourteen years, where it stayed until the decade of the U.S. Civil War.¹⁹⁴ Economist William Nordhaus suggested five to six years as an inflection point for the purposes of welfare effects.¹⁹⁵ Distinguishing among technologies for purposes of setting the patent term could eliminate some costs.¹⁹⁶ Inventions requiring more years to produce or test, such as cancer drugs, could receive longer terms.¹⁹⁷ Inventions that might happen in the ordinary course of business, or that impose particular challenges from the point of view of the public interest, such as diagnostic or surgical techniques, medical devices, or genetically engineered animals, might be excluded from patent protection or some patent remedies.¹⁹⁸

Other targeted reforms are available that may be well-suited to the problem of software, business method, or Internet patents. An innocent infringer defense may limit some patentees to suing copyists or other entities charged with knowledge of the patent due to citing it in their own

97 HARV. L. REV. 1813 (1984); Amir H. Khoury, *Differential Patent Terms and the Commercial Capacity of Innovation*, 18 TEX. INTELL. PROP. L.J. 373, 393-411 (2010); Yehuda Kotowitz & Paul Schure, *The Optimal Patent Length*, RESEARCH GATE (Mar. 2006), http://www.researchgate.net/publication/228649974_The_Optimal_Patent_Length.

194. See Khoury, *supra* note 193, at 389. Reviving this term might result in trade sanctions against the United States at the World Trade Organization level, however, and possibly at the level of investor-state dispute resolution procedures under bilateral or multilateral trade agreements as well. See Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, art. 33, Dec. 15, 1993, 33 I.L.M. 81, 1869 U.N.T.S. 332 (requiring 20-year patent term from date of patent filing); STEPHEN CLARKSON, DOES NORTH AMERICA EXIST? GOVERNING THE CONTINENT AFTER NAFTA AND 9/11, at 356 (2008) (describing potential WTO and North American Free Trade Agreement remedies for inadequate patent term); Jay Erstling, *Using Patents to Protect Traditional Knowledge*, 15 TEX. WESLEYAN L. REV. 295, 307-309 (2009) (describing WTO obligations to provide software and ecommerce patent protection) (citing Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27, *supra*).

195. William D. Nordhaus, *The Optimum Life of a Patent: Reply*, 62 AM. ECON. REV. 428, 428 (1972).

196. See Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1577, 1604-07 (2003); L. James Harris & Regan J. Fay, *Certain Incontestable Patents Are Warranted*, 60 J. PAT. OFF. SOC'Y 27, 27 (1978); Khoury, *supra* note 193, at 393-94 & n.158.

197. For example, Congress has decided that pharmaceutical patent owners may need an extended patent term to adjust for the time required to conduct and report on the results of human clinical trials on new drugs. See Drug Price Competition and Patent Term Restoration Act of 1984, Pub. L. No. 98-417, 98 Stat. 1585 (to be codified at 21 U.S.C. § 301); Michael W. Carroll, *One for All: The Problem of Uniformity Cost in Intellectual Property Law*, 55 AM. U. L. REV. 845 (2006).

198. See, e.g., 35 U.S.C. § 287(c) (2012) (describing certain medical techniques not subject to patent damages remedy as against medical practitioners or hospitals); Erstling, *supra* note 194, at 308 (stating that WTO in its TRIPS Agreement permits WTO members to exclude from patent protection entirely the category of diagnostic or surgical techniques for the healing of people or animals) (citing Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27.3(a), *supra* note 194).

patents or imitating its methods.¹⁹⁹ A fair use or reverse-engineering defense might shield subsequent engineers or innovators who are trying to “design around” a patented technology without infringing the patent on it. Both of these defenses are common in copyright cases, and reverse engineering is important in trade secret law.²⁰⁰ The Federal Circuit could be divested of its centralized role in patent appeals, rewinding the system to the era when regional courts of appeals invalidated patents on a variety of grounds at higher rates.²⁰¹ Congress could stop its practice of diverting patent filing and maintenance fees to pork-barrel projects and general spending, a practice that has been criticized as reducing the ratio of patent examiners to applications to a low level.²⁰² Extracompensatory and treble damages could be restricted to cases of purposeful infringement.²⁰³ Actual damages could be restricted by compelling the patent owner to show that the infringer “might not have purchased a product other than its own [patented invention], absent the infringement.”²⁰⁴

2. Imitative, Inevitable, or Obvious Improvements

Under §§ 101 and 103 of the Patent Act, transferring ordinary business techniques to the Internet may not be patentable.²⁰⁵ Precedent under the Patent Act of 1952 declared that shedding new light on existing machines, processes, or improvements may be insufficient discovery to warrant patent protection. “It is not invention to perceive that the product which others had discovered had qualities they failed to detect.”²⁰⁶ The

199. *Cf. De Acosta v. Brown*, 146 F.2d 408, 413 (2d Cir. 1944) (Hand, J., dissenting) (describing the exoneration of innocent infringers as a benefit of limiting secondary infringement doctrines to those with knowledge).

200. See BURK & LEMLEY, *supra* note 41, at 160-62.

201. See Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CAL. L. REV. 803, 822 (1988) (stating that the invalidation rate plummeted from 66% to 44% under Federal Circuit in 1982-1985).

202. See Kappos, *supra* note 132; Niro, *supra* note 10, at 185, 194-95 & n.66.

203. Compare *In re Seagate Tech. LLC*, 497 F.3d 1360, 1376 (Fed. Cir. 2007) (en banc) (“[Willful infringement is making, using, or selling an invention despite] an objectively high likelihood that [such] actions constituted infringement of a valid patent [where] this objectively-defined risk (determined by the record developed in the infringement proceeding) was either known or so obvious that it should have been known to the accused infringer.”), with *Day v. Woodworth*, 54 U.S. (13 How.) 363, 371-72 (1851) (suggesting that treble damages depend upon “the degree of malice, wantonness, oppression, or outrage of the defendant’s conduct”).

204. *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1545 (Fed. Cir. 1995) (en banc). Instead of this, the Federal Circuit required only “a reasonable probability that ‘but for’ the infringement, it would have made the sales that were made by the infringer.” *Id.*

205. See *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014); *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

206. *Gen. Elec. Co. v. Jewel Incandescent Lamp Co.*, 326 U.S. 242, 249 (1945).

prior art of patents, publications, and products on sale defines the public domain, and finding new functions in this body of material may not rise to the level of invention.²⁰⁷ Even inventions or processes that have not been tried to date, but that are “obvious to try” in light of the prior art, may be unpatentable.²⁰⁸ This is because “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.”²⁰⁹ Section 103 declares that such obvious solutions may be unpatentable.²¹⁰ In a notable recent proceeding, the USPTO cancelled three claims of a patent on the grounds that it was obvious to combine four prior art references to solve the problem to which the inventor’s attention was directed.²¹¹ A famous PAE, Sovereign Software, lost on obviousness grounds in a major case involving its online shopping patent.²¹²

However, there are limits to the bar on obvious improvements. Many of them seem to be well-justified by the potential of encouraging valuable research into known avenues of technical possibility. When every element of a claim is not present in the prior art, courts refuse to find obviousness.²¹³ If significant experimentation with the prior art’s compounds, techniques, or solutions would be needed in order to arrive at the patented invention, that invention is not obvious.²¹⁴ The Federal

207. *In re Wiseman*, 596 F.2d 1019, 1023 (C.C.P.A. 1979) (“[A] structure suggested by the prior art, and, hence, potentially in the possession of the public, is patentable . . . because it also possesses an inherent, but hitherto unknown, function which [patentees] claim to have discovered [is not the law because a] patent on such a structure would remove from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art.”).

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

209. *Id.* at 421.

210. *See id.*

211. *See Garmin Int’l, Inc. v. Cuozzo Speed Techs. LLC*, No. IPR2012-00001 (JL) (P.T.A.B. Jan. 9, 2013); Colvin, *supra* note 135.

212. *See Sovereign Software LLC v. Newegg Inc.*, 705 F.3d 1333 (Fed. Cir.), *amended on reh’g*, 728 F.3d 1332 (per curiam), *cert. denied*, 134 S. Ct. 910 (2014).

213. *See TriMed, Inc. v. Stryker Corp.*, 608 F.3d 1333, 1341-42 (Fed. Cir. 2010) (reversing summary judgment on grounds of obviousness where the absence of a claim limitation of including “claimed fixation pin” precluded a finding of “predictable combination of known elements” under *KSR v. Teleflex*); *Hynix Semiconductor Inc. v. Rambus Inc.*, No. C-00-20905 RMW, 2009 WL 112834, at *12 (N.D. Cal. Jan. 16, 2009) (“Hynix moved for summary judgment that the claim is invalid as obvious in light of the teachings of Redwine and Lofgren. The court denied summary judgment, but held that Hynix had established that Redwine disclosed the three limitations of incorporated claim 31, leaving only the final limitation in dispute.”).

214. *See Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1359 (Fed. Cir. 2013) (holding that where experimentation would be required to assess whether prior art teaching away from claimed invention was correct, invention was not obvious, particularly given fact that some years had passed since publication date of prior art references suggesting or motivating practitioners in the art to try the claimed invention); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 723 F.3d 1363, 1372

Circuit has rejected a challenge to jury verdict finding claims not obvious where there was closely related prior art, but a reasonable jury could still find that the prior art did not disclose a “metacode map” or a “pointer” [which] is an ‘address of use.’”²¹⁵ The extent to which an improvement followed a known trend to an obvious result is arguably a question for the jury, under the Patent Act of 1952 (as amended) and the Seventh Amendment.²¹⁶

On multiple occasions, the courts have regarded uncertainty in the field about whether a solution would work, known as “teaching away,” as a reason not to find an invention obvious.²¹⁷ A departure from a known

(Fed. Cir. 2013) (holding that invention was not obvious where additional work would be needed to resolve whether patented combination would work, in light of prior art teaching away from it, despite the fact that more recent art suggests that the combination “yielded promising results in human trials”); *Medichem, SA v. Rolabo*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (“Where the prior art contains ‘apparently conflicting’ teachings (where some references teach the combination and others teach away from it) each reference must be considered ‘for its power to suggest solutions to an artisan of ordinary skill. . . . consider[ing] the degree to which one reference might accurately discredit another.’” (citation omitted)).

215. *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 846 (Fed. Cir. 2010), *aff’d*, 131 S. Ct. 2238 (2011).

216. *See TriMed*, 608 F.3d at 1341 (“What a reference teaches, whether there is a trend or demand in the relevant marketplace or design community, the background knowledge of one of skill in the art—these are all questions reserved for the finder of fact.”); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326-28 (Fed. Cir. 2009) (holding that prior art did not render an invention obvious where it “teaches away” from an essential element of the claim, despite prior art references that could have been combined to arrive at the claimed invention, because teaching away from it might have deterred “a person of ordinary skill . . . from combining [the prior art] in the manner that [defendant] proposes.”); *Elantech Devices Corp. v. Synaptics, Inc.*, No. C 06-01839 CRB, 2008 WL 1734748, at *8 (N.D. Cal. Apr. 4, 2008) (denying summary judgment to the case’s defendants on obviousness despite several related references, where defendants failed to show that “every other element of the claim was disclosed (separately) by prior art”).

217. *See Cross, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294 (Fed. Cir. 2010) (reversing finding of obviousness where “the prior art, in fact, taught away” from and “discourage[d]” the “system of the ‘858 patent at the time of the invention”); *In re Chapman*, 595 F.3d 1330, 1338-39 (Fed. Cir. 2010) (reversing denial of patent based on obviousness where prior art reference cited by government suggested “more possibilities from which to choose” other than plaintiff’s invention, so that reference “teaches six different possible [alternatives]” and did not make invention obvious); *Ortho-McNeil Pharm., Inc. v. Teva Pharm. Indus., Ltd.*, 344 F. App’x 595, 598-99 (Fed. Cir. 2009) (reversing summary judgment based on obviousness where plaintiff’s expert opined that defendant’s prior art references contained teachings away from combination patented by plaintiff because they disparaged the combination and disfavored it in practice); *Hynix*, 2009 WL 112834, at *12 (rejecting a challenge to the plaintiff’s “testimony at trial about whether the prior art contained a teaching, suggestion, or motivation to combine the elements of Rambus’s claimed inventions and whether the references ‘teach away’ from Rambus’s claimed inventions”); *Therasense, Inc. v. Becton, Dickinson & Co.*, 560 F. Supp. 2d 835, 876-77 (N.D. Cal. 2008) (holding that the defendant failed to carry its burden of showing obviousness, where the prior art “undisputedly teaches away from the use of” one element of the claimed invention); *Tech. Licensing Corp. v. Gennum Corp.*, No. C 01-04204RS, 2007 WL 1319528, at *18 & n.37 (N.D. Cal. May 4, 2007) (holding that a patent on variable current chips was not obvious even

trend or avenue of inquiry may be a valuable invention to society.²¹⁸ A patent owner may rebut a prima facie case of obviousness where it can show that the invention produces unpredictable or unexpected results.²¹⁹ This appropriately rewards R&D labor while rejecting patents on obvious ideas.

3. Vague or Ambiguous Patent Language

Another danger of “extortion” that is often discussed in connection with measures like the Innovation Act involves patents that are

though defendant’s documents “appear to show circuitry that would output a variable current” because defendant’s “products were built with a circuit that outputs fixed current instead,” which “supports an inference that it was not obvious (to Gennum at least) to depart from the prior art”).

218. See *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007) (“[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.”); *Alza Corp. v. Mylan Labs., Inc.*, 391 F.3d 1365, 1372-73 (Fed. Cir. 2004) (affirming district court’s finding of nonobviousness where prior art “teaches away” from the invention, so that defendant could not “produce evidence of the combinability of [the prior art] references”); *Medtronic Vascular Inc. v. Abbott Cardiovascular Sys., Inc.*, 614 F. Supp. 2d 1006, 1023-24 (N.D. Cal. 2009) (“[P]laintiffs’ evidence successfully raises disputed issues of material fact with respect to the scope and content of the prior art, as well as the level of ordinary skill in the art [where plaintiff presented evidence that] a person of skill in the art would, if anything, have been skeptical of replacing the connectors disclosed in the prior art with the claimed non-sinusoidal flexure members, due to concerns that the shaped flexure members would lead to undesirable twisting and uneven expansion.” (citing *KSR*, 127 S. Ct. at 1740; *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983))); *Patent Category Corp. v. Target Corp.*, 567 F. Supp. 2d 1171, 1195 (C.D. Cal. 2008) (holding that plaintiff presented a triable issue of fact as to obviousness where prior art lacked an element required by patent-in-suit, because “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” (quoting *KSR*, 550 U.S. at 416); *Boston Scientific Corp. v. Johnson & Johnson*, 550 F. Supp. 2d 1102, 1115-16 (N.D. Cal. 2008)) (holding that invention was not obvious in light of “common” practice of “many skilled in the art” at the time, which created “multiple opportunities for [the] inventors to take wrong turns). The *Boston* court reasoned that “the fact that others had tried unsuccessfully to find the solution provided by the Kastenhofer patents strongly supports the Court’s conclusion that the inventions were not obvious.”

219. See *TriMed*, 608 F.3d at 1341-42 (reversing summary judgment on grounds of obviousness and anticipation where the plaintiff raised a genuine issue of material fact regarding “whether the claimed invention achieves predictable results and uses prior art elements according to their established functions”); *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1373 (Fed. Cir. 2010) (affirming a jury verdict of patent validity against an obviousness challenge where the defendant “offered no evidence to show predictability of the results of combining the prior art”), *abrogated by Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014); *Ortho-McNeill Pharm.*, 344 Fed. App’x at 600 (stating that evidence of obviousness in light of the prior art may be rebutted with evidence that the invention “produces new and unexpected results over the prior art.”); see also *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1285 (Fed. Cir. 2000) (“[E]vidence of failed attempts by others could be determinative on the issue of obviousness.”); *Medtronic*, 614 F. Supp. 2d at 1024 (stating that evidence linking commercial success of defendants’ accused product to the claimed elements of the patents in the suit justified a denial of the immediate obviousness motion).

misconstrued or distorted into applying to the wrong defendants.²²⁰ This is a problem which, when combined with the high cost of legal counsel, could bully firms into settling cases.²²¹ According to a 2008 study, between 59% and 67% of district court decisions are reversed or modified on appeal, so a victory at summary judgment or trial would not necessarily be an end to risk for a firm.²²²

The Patent Act, properly construed, does not countenance such tactics. Section 112 of the Patent Act is supposed to prohibit vague or ambiguous claims. It requires claims to “particularly point[] out and distinctly claim[] the subject matter” of the invention.²²³ To bring even more clarity, § 112 calls for the patent to describe the invention and “the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable” it to be made and used by others skilled in the technology, and to disclose “the best mode” of implementing the invention.²²⁴ The sort of vague patents that some NPEs rely on may fail this test.²²⁵

Under § 112, courts should look principally to the specification as a source of notice to potential infringers concerning the proper scope of patent claims.²²⁶ If the specification does not appear to disclose all information about how to implement such an invention to the USPTO, the examiner should reject the application.²²⁷ Although the prosecution

220. See James Bessen et al., *The Private and Social Costs of Patent Trolls*, 34 REGULATION 26, 26 (Winter 2011-2012) (“To the extent that . . . NPEs opportunistically assert ‘fuzzy patents’ against real technology firms, they can decrease the incentives for these firms to innovate.”); BURK & LEMLEY, *supra* note 41, at 160. Many patentees are striving to sue over technologies they do not own.

221. See *id.*; Exec. Office of the President, *supra* note 4, at 9 (arguing that PAEs advance claim constructions that may “not prevail in the courtroom”); Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2117 (2013) (“[T]rolls are a symptom of larger flaws in the patent system[, and thus] those who have focused on trolls have, in effect, been missing the forest for the trolls.”).

222. See Robert J. Ambrogi, *Study: Patent Litigation Protects Holders*, LAW.COM (June 2, 2008), http://legalblogwatch.typepad.com/legal_blog_watch/2008/06/study-patent-li.html.

223. 35 U.S.C. § 112(a) (2012).

224. *Id.*

225. See Bessen et al., *supra* note 220.

226. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc).

227. See *Great N. Corp. v. Henry Molded Prods., Inc.*, 94 F.3d 1569, 1574 (Fed. Cir. 1996); *U.S. Gypsum Co. v. Nat’l Gypsum Co.*, 74 F.3d 1209, 1214-16 (Fed. Cir. 1996); *Glaxo, Inc. v. Novopharm, Ltd.*, 52 F.3d 1043, 1050 (Fed. Cir. 1995); *Transco Prods., Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 556-57 & n.6 (Fed. Cir. 1994); *Wahl Instruments, Inc. v. Acvious, Inc.*, 950 F.2d 1575, 1580 (Fed. Cir. 1991); *Randomex, Inc. v. Scopus Corp.*, 849 F.2d 585, 590 (Fed. Cir. 1988); *In re Gay*, 309 F.2d 769, 774 (C.C.P.A. 1962). “Best mode” is no longer a defense to infringers after the AIA. See, e.g., *Radiancy, Inc. v. Viatek Consumer Products Group, Inc.*, No. 13-cv-3767 (NSR), 2014 WL 1318374, at *7-8 (S.D.N.Y. Apr. 1, 2014) (citing 35

history is also relevant and worthy of consideration during claims construction, it often represents a moving target that is very much up for debate.²²⁸ Attempts by either side to use unilateral snippets from the prosecution history often fail.²²⁹ Thus, when NPEs attempt to avoid the manner in which they defined their invention in the specification by having recourse to statements that they or the examiner made in the prosecution history, this tactic should not result in broadening the patent's scope.

Many patent specifications remove any confusion by defining the invention in terms of an embodiment described in the rest of the specification. The Federal Circuit has repeatedly held that “when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.”²³⁰ Claims “must be read in view of the specification, of

U.S.C. § 282(b)(3)(A)); *see also* AMY LANDERS, UNDERSTANDING PATENT LAW 140-41 (2012) (arguing that the elimination of the best-mode defense is effective as to all patentees).

228. *See Phillips*, 415 F.3d at 1317 (suggesting that prosecution history represents an ongoing negotiation between the PTO and the applicant and often lacks the clarity of the specification and thus is less useful for claim construction purposes).

229. *See Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1319 (Fed. Cir. 2006) (deciding that the patent applicant's attempts in prosecution history to broaden the scope of the patent's claims beyond the scope suggested by specification should be given little effect); *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1347 (Fed. Cir. 2005) (“[T]he examiner's unilateral remarks alone do not affect the scope of the claim, let alone show a surrender of claimed subject matter.”); *Phillips*, 415 F.3d at 1317 (finding that statements made by the examiner during prosecution history are “less useful for claim construction purposes”); *Nartron Corp. v. Borg Indak, Inc.*, 848 F. Supp. 2d 725, 729 (E.D. Mich. 2012) (“Moreover, ‘[t]he examiner's unilateral remarks alone do not affect the scope of the claim’” (quoting *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1347 (Fed. Cir. 2005))); *Whetstone Elecs., LLC v. Xerox Corp.*, No. 6:10cv278, 2011 WL 3510750, at *7 (E.D. Tex. Aug. 10, 2011) (“[The statements of the] patent examiner in the Reasons of Allowance . . . fall short of [the] clear and unmistakable disavowal required to limit the ordinary meaning of a claim term.”); *IP Innovation LLC v. Mitsubishi Elec. Corp.*, No. 08C393, 2009 WL 3617505, at *6 (N.D. Ill. Oct. 29, 2009) (“Defendants argue that the PTO's understanding of ‘void’ in the ‘780 and ‘637 Patents is significant to construing claims. However, *Salazar* governs the underlying weight accorded to unilateral remarks by the PTO. Thus, based on the above, we construe the term ‘void’ (‘964 Patent, claim 1) in a manner consistent with Plaintiffs’ proposed construction.” (citing *Salazar*, 414 F.3d 1342)); *Bryant Prods., Inc. v. PoMaCon, Inc.*, No. 03-C-0381, 2008 WL 1927171, at *10 (E.D. Wis. Apr. 29, 2008) (“[There is no] legal authority holding that an examiner's comments during prosecution of a patent application are dispositive[, and thus this] court cannot infer from the examiner's comments that no genuine issue of material fact relating to the meaning of ‘predetermined force’ exists for trial.”).

230. *Edward Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1331 (Fed. Cir. 2009) (quoting *Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1379 (Fed. Cir. 2005) (internal quotation marks omitted)); *Microsoft Corp. v. Multi-Tech. Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004) (“In light of those clear statements in the specification that the invention (‘the present system’) is directed to communications ‘over a standard telephone line,’ we cannot read the claims . . . to encompass data transmission over a packet-switched network such as the Internet.”); *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1551, (Fed. Cir. 1996) (“[W]hen the

which they are a part.”²³¹ Therefore, when the specification sets forth what the improvement represented by an invention is, then that written description supersedes apparently broader language used in the claim, and the claims are not ambiguous as a matter of law and do not require expert testimony to be interpreted.²³² Describing the preferred embodiment as the invention removes any ambiguity for persons skilled in the art by establishing the boundaries of a reasonable reading of the claims.²³³ In addition, claims in a patent also should not be construed in a

preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.”), *abrogated by* Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed. Cir. 2000).

231. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

232. *See id.*; *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.”); *Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999) (“Whether an invention is fairly claimed more broadly than the ‘preferred embodiment’ in the specification is a question specific to the content of the specification, the context in which the embodiment is described, the prosecution history, and if appropriate the prior art. . . .”); *see also Chimie*, 402 F.3d at 1377 (refusing to construe disputed term “dust-free and non-dusting” as literally contemplating that the invention creates no dust, because the “written description indicate[d] that the invention itself produces some dust, but less dust than the prior art”); *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003) (urging courts to determine “whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment”); *Biogen, Inc. v. Berlex Labs., Inc.*, 318 F.3d 1132, 1140 (Fed. Cir. 2003) (holding that claim construction was properly limited to embodiments described in specification); *Teleflex, Inc. v. Ficosia N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002) (stating that specification’s “clear statements of scope” should guide claim construction); *Netword, LLC v. Central Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001) (holding that claims do not “enlarge what is patented beyond what the inventor has described as the invention”); *Cultor Corp. v. A.E. Staley Mfg. Co.*, 224 F.3d 1328, 1328-31 (Fed. Cir. 2000) (holding that although the claim language referred to dissolving polydextrose in water, without a limitation to citric acid in claim terms, the claims were properly construed as limited to purification using citric acid where the written description described the subject matter of the patent as polydextrose purification process using a citric acid catalyst, which “effected a disclaimer of the other prior art acids,” and also holding that “[c]laims are not correctly construed to cover” that which is expressly disclaimed); *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1581 (Fed. Cir. 1997) (accepting the district court’s rejection of the patentee’s attempt to construe claim term “passage” according to its ordinary and accustomed meaning, because the written description contemplated only nonsmooth or conical passages); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998) (holding that although claim could be read more broadly, specification made “clear that the ‘589 patent discloses only conical shaped cups and nothing broader”); *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997) (“[S]ince, by distinguishing the claimed invention over the prior art, an applicant is indicating what the claims do not cover, he is by implication surrendering such protection.”); *Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770 (Fed. Cir. 1996) (holding that claim should be limited to specification where “only one” embodiment is described there).

233. Thus, a specification should be read to limit the claims when it refers to “the present invention” or “this invention” as being limited in a certain way. *See SciMed Life Systems, Inc. v.*

way that is inconsistent with the meaning of other asserted or unasserted claims.²³⁴ Indeed, interpreting one claim by using expert testimony to make its terms contradict the terms of other claims is reversible error.²³⁵

Claim terms that are used consistently throughout several sister patents should be interpreted consistently across all patents, particularly where the sister patents all derive from the same application.²³⁶ Similarly, construing one claim limitation in a way that makes another claim meaningless or superfluous is impermissible.²³⁷ Even “unasserted or

Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1339-40 (Fed. Cir. 2001). The specification in *SciMed* stated that “the coaxial lumen structure” was a part of “the present invention.” The district court said that this “leaves no doubt that a person skilled in the art would conclude that the inventor envisioned only one design for the catheters [with] lumens arranged coaxially.” *Id.* The Federal Circuit agreed, holding that “when the ‘preferred embodiment’ is described as the invention itself, the claims are not entitled to a broader scope than that embodiment.” *Id.* at 1341 (quoting *Wang Labs.*, 197 F.3d at 1383). In *Wang Laboratories*, the defendant argued that in general usage the claim term “frame” could also refer to “bit-mapped display systems.” The Federal Circuit held, however, that “bit-mapped display systems” were not included within the claims because the “only system that is described and enabled” in the patent specification “uses a character-based protocol,” that the references to bit-mapped protocols did “not describe them as included in the applicant’s invention, and that the specification would not be so understood by a person skilled in the field of the invention.” *Id.* at 1382. The court cited *Modine*, 75 F.3d at 1551, for the proposition that “when the ‘preferred embodiment’ is described as the invention itself, the claims are not entitled to a broader scope than that embodiment.” *Id.* at 1383.

234. See *PODS, Inc. v. Porta Stor, Inc.*, 484 F.3d 1359, 1366 (Fed. Cir. 2007) (“We apply a ‘presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims.’”) (quoting *Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001)); *Phillips*, 415 F.3d at 1314 (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.”).

235. *Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701 (Fed. Cir. 1997).

236. See *Boss Indus., Inc. v. Yamaha Motor Corp. U.S.A., Inc.*, 333 F. App’x 531, 536 (Fed. Cir. 2009) (“[Claim interpretation should be] in accordance with the entirety of each patents’ intrinsic evidence [and where] each patent-in-suit is derived from the same parent application and shares many common terms with its sister patents, the district court correctly interpreted [a claim limitation] consistently across all of the asserted patents.”); *Jonsson v. Stanley Works*, 903 F.2d 812, 818 (Fed. Cir. 1990) (“The ‘912 patent is the result of a continuation-in-part application from the original ‘008 application, which led to the ‘251 patent. Hence . . . the construction of the term ‘diffuse light’ contained in that patent, is relevant to an understanding of ‘diffuse light’ as that term is used in the ‘912 patent.”); *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005) (“Because NTP’s patents all derive from the same parent application and share many common terms, we must interpret the claims consistently across all asserted patents.”).

237. See *Boss Indus.*, 333 Fed. App’x at 542 (“Construing the limitation ‘adjacent’ as ‘close to,’ as urged by Boss, in this case would render that limitation in claim 5 essentially meaningless in light of the other unasserted claims—a construction we cannot accept based on the entirety of the intrinsic evidence.”); *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1327-28 (Fed. Cir. 2007) (rejecting a claim construction that would have “render[ed] meaningless another claim’s limitation”).

cancelled claims may provide ‘probative evidence’ that an embodiment is not within the scope of an asserted claim.”²³⁸ For this reason, a patent aggregator such as Intellectual Ventures that asserts families of patents against infringers may be subject to more narrowing of their patents than are the owners of stand-alone patents who do not possess unasserted claims or patents.

The inventor’s purpose in developing the invention may also define the scope of the patent. It is well established that if a claim is construed to be computerized, the claim means that a human being unaided by a computer cannot perform the claimed function. In one case in which a patent claimed various methods of fabricating an orthodontic appliance for positioning upper and lower teeth of a patient to preferred finish positions, the Federal Circuit held that the positions had to be derived automatically rather than by a human, because the “Background of the Invention” section of the patent described the inventor’s intention to achieve “the task of developing an automated system that includes reliable and efficient decision making algorithms and techniques for automatically determining an ideal finish position of the teeth.”²³⁹ The court rejected the argument that the “plain language” of the claim did not require automation of the process of positioning the teeth.²⁴⁰ The court emphasized that the inventor stated his intention to improve upon the failings of the prior art by automating teeth positioning.²⁴¹ This sort of intentionalist or originalist construction aids clarity.

Finally, the Federal Circuit has refused to adopt proposed claims constructions that did not achieve the patentee’s purpose of avoiding the prior art.²⁴² The Federal Circuit construes patents narrowly so as to sustain their validity when they are ambiguous.²⁴³ Claim limitations that

238. PSN Ill., LLC v. Ivoclar Vivadent, Inc., 525 F.3d 1159, 1166 (Fed. Cir. 2008).

239. Ormco Corp. v. Align. Tech., Inc., 463 F.3d 1299, 1316-17 (Fed. Cir. 2006).

240. *Id.*

241. *Id.*

242. See *Research Plastics, Inc. v. Fed. Packaging Corp.*, 421 F.3d 1290, 1297 (Fed. Cir. 2005) (rejecting a proposed “construction [that] would not avoid the prior art that Research distinguished”); *Beckman Instruments, Inc. v. Chemtronics, Inc.*, 439 F.2d 1369, 1375 (5th Cir. 1970) (“In examining the patent claims, we must construe them narrowly so as to avoid the prior art if such a construction can reasonably be adopted.”).

243. See, e.g., *Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1215-16 (Fed. Cir. 2008) (“[W]e may construe claims to sustain their validity when the claims are amenable to more than one reasonable construction”); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (en banc) (“[W]e have acknowledged the maxim that claims should be construed to preserve their validity. [W]e have limited the maxim to cases in which ‘the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.’” (citation omitted)); *Generation II Orthotics Inc. v. Med. Tech. Inc.*, 263 F.3d 1356, 1365 (Fed. Cir. 2001) (“[C]laims can only be construed to preserve their validity where the proposed claim construction

avoid the prior art should not be disregarded in favor of construing all claims to mean the same thing due to the preferred embodiment's structure or other language in the specification.²⁴⁴ Moreover, an inventor's arguments made to the USPTO during prosecution to overcome the prior art may lead to narrow claim interpretations, and may provide strong support for an argument that the claims should be narrowly construed as limited to products made by the process described in the specification.²⁴⁵ In *Honeywell International, Inc. v. ITT Industries, Inc.*, in which the specification stated that “[t]his invention relates to a [certain technology],” the court refused to read a key claim more broadly than what the specification described the invention as being.²⁴⁶ The court held that “[w]here, as here, the written description clearly identifies what his invention is, an expression by a patentee during prosecution that he intends his claims to cover more than what his specification discloses is entitled to little weight.”²⁴⁷

4. Recourse for Infringers Threatened by Invalid Patents or Abusive Demands

There is a clear remedy for victims of “extortion” under the AIA. An infringer has the right to institute an IPR seeking a determination of patent invalidity by the USPTO.²⁴⁸ There is also a covered business method review program.²⁴⁹ Potential infringers such as Apple and Microsoft have even “filed multiple IPR petitions for the same patent.”²⁵⁰ Entire industries have apparently collaborated in filing IPRs against the same patent owner, with five automotive companies challenging one

is ‘practicable,’ is based on sound claim construction principles, and does not revise or ignore the explicit language of the claims.”).

244. *Cf.* *Boss Indus., Inc. v. Yamaha Motor Corp., U.S.A.*, 333 Fed. App’x 531, 542 (Fed. Cir. 2009); *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1327-28 (Fed. Cir. 2007).

245. *See* *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1374 (Fed. Cir. 2007); *see also* *i4i Ltd. P’ship v. Microsoft Corp.*, 589 F.3d 1246 (Fed. Cir. 2009).

246. *Honeywell Int’l v. Itt Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006).

247. *Id.* at 1319.

248. 35 U.S.C. § 311 (2012); 37 C.F.R. §§ 42.100-42.104 (2012). However, an IPR may not be filed by an infringer more than one year after it “is served with a complaint alleging infringement of the patent.” 35 U.S.C. § 315(b).

249. Changes to Implement Inter Partes Review Proceedings, Post-Grant Review Proceedings, and Transitional Program for Covered Business Method Patents, 77 Fed. Reg. 48,680, 48,682 (Aug. 14, 2012).

250. Margaret Welsh, *Getting a Second Bite at the Apple: Filing Multiple IPRs for the Same Patent*, POST-GRANT PROCEEDINGS (Jan. 24, 2014), <http://usptopost-grant.com/2014/01/24/getting-a-second-bite-at-the-apple-filing-multiple-iprs-for-the-same-patent/>.

patent in April 2014.²⁵¹ An infringer dissatisfied with a decision on IPR may be able to appeal to the Federal Circuit.²⁵² In one case, an infringement suit filed in 2004 led to the infringer seeking IPR, which was remanded for further proceedings a decade later, in 2014, after an appeal to the Federal Circuit.²⁵³ In another, an IPR filed in 2007 culminated in an opinion by the Board of Patent Appeals and Interferences in May 2012, which, in turn, the Federal Circuit reversed in November 2013.²⁵⁴ Between 2010 and 2012, the median pendency of an IPR request grew from thirty-two to thirty-four months, which is some indication of the seriousness with which they are treated, even without factoring in a Federal Circuit appeal.²⁵⁵

Those subject to “extortion” by excessive royalty demands on valid patent claims have slightly different remedies. If the patent is valid, an infringer may seek a narrowing construction that may define certain goods or services as noninfringing.²⁵⁶ An infringer may also, by declaratory judgment, clarify that it does not owe royalties on unpatented features of its products or services where the demand for the product or service is not reducible to the patented improvement.

Supreme Court case law supports the view that royalties are not due on features that are unpatented or that are owned by an entity other than the plaintiff, even though patent infringement may occur by the inclusion of additional parts to an invention, as long as all of the elements of the invention are present in the parts of the accused product. More than a

251. See Scott Daniels & Cindy Chen, *Five IPRS Filed Against Single Auto Patent, Among the Requests: Week of April 7, 2014*, WESTERMAN HATTORI DANIELS & ADRIAN, LLP (Apr. 15, 2014), <http://blog.whda.com/2014/04/five-iprs-filed-against-single-auto-patent-among-the-requests-week-of-april-7-2014/#more-4812>.

252. It appears that the PTO’s decision *not* to institute an IPR under the AIA may not be appealed, however. See *Dominion Dealer Solutions LLC v. Focarino*, No. 3:13-cv-00699, slip op. (E.D. Va. Apr. 18, 2014). Another judge has stated that a U.S. district court is not “required to overturn its prior decision based on the analysis in a decision by the PTAB granting or denying institution of [an IPR].” *Va. Innovation Scis. Inc. v. Samsung Elecs. Co. Ltd.*, No. 2:13-cv-00332, slip op. (E.D. Va. May 7, 2014).

253. See Gabriella Khorasanee, *Not So Speedy Resolution to Patent Infringement Case*, FINDLAW FED. CIRCUIT BLOG (Feb. 12, 2014) http://blogs.findlaw.com/federal_circuit/2014/02/not-so-speedy-resolution-to-patent-infringement-case.html (citing *Tempo Lighting, Inc. v. Tivoli LLC*, 742 F.3d 973 (Fed. Cir. 2014)).

254. See *Randall Mfg. v. Rea*, No. 95/000,326 (B.P.A.I. 2007), *rev’d sub nom.* *Randall Mfg. v. FG Products, Inc.*, No. 2012-005371, 2012 WL 1616962, at *4 (B.P.A.I. May 7, 2012), *vacated sub nom.* *Randall Mfg. v. Rea*, 733 F.3d 1355 (Fed. Cir. 2013).

255. *Inter Partes Reexamination Filing Data*, U.S. PAT. & TRADEMARK OFF. 2 (Sept. 30, 2012), http://www.uspto.gov/patents/stats/inter_parte_historical_stats_roll_up_EOY2013.pdf (recording a median of 34.1 months in Sept. 2012); *id.* at 4 (recording a median of 31.4 months in 2010).

256. See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff’d* 517 U.S. 370 (1996) (holding that patent construction is matter of law for the court).

century ago, the Supreme Court stated that “the patentee must . . . give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features” or show that “the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.”²⁵⁷ This “entire market value rule” makes clear that an infringer adding material to a patented device or process is liable for damages on the entire market to which the patented invention contributed a functional advantage.²⁵⁸

The Federal Circuit, however, has insisted in a number of recent cases that the plaintiff show that the patented feature “creates” the “demand” for or “value” of the product or service before permitting the entire revenue attributable to a complex product or service—only one or a few features of which may infringe the plaintiff’s patent—to serve as the royalty base pursuant to the entire market value rule.²⁵⁹

In the event of more systematic problems—ones which may not be amenable to declaratory judgment actions or defense of infringement suits—the Department of Justice (DOJ), FTC, and private parties are free to pursue competition law remedies.²⁶⁰ Ordinary patent licensing to infringers or potential infringers is not an antitrust violation.²⁶¹ Courts are

257. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1337 (Fed. Cir. 2009) (quoting *Garretson v. Clark*, 111 U.S. 120, 121-22 (1884)).

258. *See id.* *See generally* *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1550 (Fed. Cir. 1995) (en banc) (holding that where both patented and unpatented components of an invention are combined in a “single assembly” or as “parts of a complete machine,” or “constitute a functional unit,” then patentee may recover damages based on value of entire assembly or unit); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580 (Fed. Cir. 1989) (“[T]he entire market value rule . . . permits recovery of damages based on the value of the entire apparatus containing several features, where the patent related feature is the basis for customer demand.”).

259. *LaserDynamics Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2012); *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1318 (Fed. Cir. 2011) (internal quotation marks omitted). *See also* *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1339 (Fed. Cir. 2009); *Lucent Techs., Inc. v. Microsoft Corp.*, No. 3:07-cv-2000, 2011 WL 2728317 (S.D. Cal. July 13, 2011); *Lucent Techs., Inc., v. Microsoft Corp.*, 837 F. Supp. 2d 1107 (S.D. Cal. Nov. 10, 2011); *Oracle Am., Inc. v. Google Inc.*, 798 F. Supp. 2d 1111, 1115 (N.D. Cal. 2011).

260. Charles A. James, Assistant Att’y Gen., Antitrust Div., *Opening Day Comments of Joint DOJ-FTC Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy*, U.S. DEP’T JUST. (Feb. 6, 2002), <http://www.usdoj/atr/public/speeches/10162.htm>.

261. *See* *FTC v. Actavis, Inc.*, 133 S. Ct. 2223 (2013) (discussing how the settlement of ordinary patent litigation is legitimate because a “valid patent excludes all except its owner from the use of the protected process or product” and how this “may permit the patent owner to charge a higher-than-competitive price for the patented product” (quoting *United States v. Line Material Co.*, 333 U.S. 287, 308 (1948) (internal quotation marks omitted))); *Dawson Chem. Co. v. Rohm & Haas Co.*, 448 U.S. 176, 215 (1980) (“[T]he essence of a patent grant is the right to exclude others from profiting by the patented invention.”); *United States v. Masonite Corp.*, 316 U.S. 265, 277 (1942) (“The owner of a patent cannot extend his statutory grant by contract or agreement. A

reluctant to inquire into the fairness of licensing rates or to impose other appropriate terms on the parties.²⁶² Refusing to license rights within the scope of a patent that was not fraudulently procured is perfectly legitimate.²⁶³ A patent must also be presumed valid in this connection.²⁶⁴ The *Noerr-Pennington* doctrine gives patent owners the First Amendment right to petition the courts for redress of infringement, even if their intention is to inhibit competition or preserve a statutory monopoly.²⁶⁵

patent affords no immunity for a monopoly *not* fairly or plainly within the grant.” (emphasis added); *IDX Sys. Corp. v. Epic Sys. Corp.*, 285 F.3d 581, 585 (7th Cir. 2002) (“Nothing in the antitrust laws gives one producer a right to sponge off another’s intellectual property, even when the producer of that knowledge has a [large] market share. . . .”); *Miller Insituform, Inc. v. Insituform of N. Am. Inc.*, 830 F.2d 606, 609 (6th Cir. 1987) (“A patent holder who lawfully acquires a patent cannot be held liable under Section 2 of the Sherman Act for maintaining the monopoly power he lawfully acquired by refusing to license the patent to others.”); *United States v. Westinghouse Elec. Corp.*, 648 F.2d 642, 647-48 (9th Cir. 1981) (holding that no antitrust violation existed because Westinghouse had an “untrammelled” right “to license some of its patents and refuse to license others”); *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1206-07 (2d Cir. 1981) (“[W]here a patent has been lawfully acquired, subsequent conduct permissible under the patent laws cannot trigger any liability under the antitrust laws.”); *In re Tamoxifen Citrate Antitrust Litig.*, No. 1408, 2002 U.S. Dist. LEXIS 16503, at *14-15 (E.D.N.Y. Aug. 20, 2002) (“The Court is driven to conclude, however, that it must decline to follow the majority of cases . . . as it believes that the plaintiffs cannot succeed on their claims without proving the invalidity or unenforceability of Zeneca’s patent.”), *aff’d*, 429 F.3d 370, 392-96 (2d Cir. 2005), *opinion amended*, 466 F.3d 187, 213 (2d Cir. 2006), *abrogated by Actavis*, 133 S. Ct. 2223; *In re Schering-Plough Corp.*, No. 9297, 2002 WL 1488085 (FTC June 27, 2002) (stating that no antitrust violation occurs where payment to a generic firm in exchange for delayed entry was not clearly less restrictive than a settlement of the underlying patent litigation), *rev’d*, 136 F.T.C. 956 (2003), *vacated*, 402 F.3d 1056 (11th Cir. 2005).

262. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 408 (2004); Phillip E. Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989).

263. *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965); *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1327-28 (Fed. Cir. 2000); *see also SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1206-07 (2d Cir. 1981) (“[W]here a patent has been lawfully acquired, subsequent conduct permissible under the patent laws cannot trigger any liability under the antitrust laws.”); *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1186 (1st Cir. 1994) (“[W]e have suggested that the exercise of patent rights is a ‘legitimate means’ by which a firm may maintain its monopoly power.”), *abrogated by Reed Elsevier, Inc. v. Mushnick*, 559 U.S. 154 (2010); Upsher-Smith’s Memorandum in Support of Its Motion To Dismiss the Complaint at 2-9, *In re Schering-Plough Corp.*, No. 9297 (FTC July 20, 2001) (stating that where there is a genuine dispute as to potential infringement, it is no antitrust violation if the “settlement is a reasonable accommodation *and* is not more anticompetitive than a likely outcome of the litigation” (quoting 12 HERBERT HOVENKAMP, ANTITRUST LAW ¶ 2046, at 265-66 (1999))); U.S. Dep’t of Justice & Fed. Trade Comm’n, *Antitrust Guidelines for the Licensing of Intellectual Property*, U.S. DEP’T JUST. §§ 1.2-2.3 (1995), <http://www.justice.gov/atr/public/guidelines/0558.htm> (reviewing antitrust implications of refusals to license patents).

264. 35 U.S.C. § 282 (2012) (in an action for infringement a “patent shall be presumed valid”).

265. *See E. R.R. Presidents Conference v. Noerr Motor Freight*, 365 U.S. 127 (1961); *United Mine Workers v. Pennington*, 381 U.S. 657 (1965); *In re New Mexico Natural Gas Antitrust Litig.*, No. 403, 1982 WL 1827 (D.N.M. Jan. 26, 1982); 1 PHILLIP AREEDA & HERBERT

Unnecessary restrictions contained within a license agreement, as opposed to offering or pricing the license itself, may be anticompetitive, however.²⁶⁶ The bundling and tying of patents together or to unpatented sales may constitute an antitrust violation, although those cases may be outdated.²⁶⁷ The courts may condemn such conduct in actions brought by the DOJ or by private parties, because “a court will not lend its aid, in any way, to a party seeking to realize the fruits of an agreement that appears to be tainted with illegality.”²⁶⁸ The FTC has wide authority to reverse the effects of unlawful conduct.²⁶⁹

HOVENKAMP, ANTITRUST LAW ¶ 202c, at 159-62 (2d ed. 2000); James R. Atwood, *Securing and Enforcing Patents: The Role of Noerr/Pennington*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 651 (Sept. 2001); Raymond Ku, *Antitrust Immunity, The First Amendment and Settlements: Defining the Boundaries of the Right to Petition*, 33 IND. L. REV. 385, 432-34 (2000).

266. European law calls these supplementary obligations on which a license is conditioned. See Consolidated Version of the Treaty on the Functioning of the European Union, Oct. 26, 2012, arts. 101-102, 2008 O.J. C 115/47, at 88-89 (2012).

267. See *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 16 (1984) (holding that use of “patent or similar monopoly” to force licensees to buy other unwanted products or services violates antitrust law only where effect is sufficiently anticompetitive) (citing *United States v. Loew's Inc.*, 371 U.S. 38, 45-47 (1962), *abrogated by Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006)), *abrogated by Ill. Tool Works Inc.*, 547 U.S. 28; *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 118 (1969) (concerning cross-licensing of patents subjected to antitrust scrutiny); *United States v. Singer Mfg. Co.*, 374 U.S. 174, 195 (1963); *United States v. Line Material Co.*, 333 U.S. 287, 308 (1948) (“[T]he possession of a valid patent or patents does not give the patentee any exemption from the provisions of the Sherman Act *beyond the limits of the patent monopoly*.” (emphasis added)); *Int'l Salt Co. v. United States*, 332 U.S. 392 (1947) (holding that it is unlawful to tie patented salt machine to unpatented salt supplies), *abrogated by Ill. Tool Works*, 547 U.S. 28; *Standard Oil Co. v. United States*, 283 U.S. 163 (1931) (concerning another patent pooling case); *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502 (1917) (concerning another tying case similar to *International Salt*); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, No. 1:13-cv-00740 (AJT/TRJ), 2013 U.S. Dist. LEXIS 177836, at *26 n.9 (E.D. Va. Dec. 18, 2013) (“[I]n *FTC v. Actavis, Inc.*, . . . the conduct addressed . . . restrained competition in a particular market, as between would-be competitors, beyond the rights conferred by a particular patent . . .”); *In re Cardizem CD Antitrust Litig.*, 90 F. Supp. 2d 819, 839 (E.D. Mich. 1999) (regarding an antitrust scrutiny of agreement not to compete in connection with patent dispute); U.S. Dep't of Justice & Fed. Trade Comm'n, *supra* note 263, § 2.3; *In re Rambus, Inc.*, (FTC Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>; Ku, *supra* note 265, at 432-34; *cf.* *Timken Roller Bearing Co. v. United States*, 341 U.S. 593 (1951) (analyzing anticompetitive trademark arrangements); *United States v. Mfrs. Aircraft Ass'n*, No. 72 Civ. 1307:MEL, 1975 WL 814 (S.D.N.Y. 1975) (concerning an analysis of anticompetitive access to essential patents); *United States v. Automobile Mfrs. Ass'n, Inc.*, 1969 Trade Cas. ¶ 72,907 (C.D. Cal. 1969) (similar to *Manufacturers Aircraft Ass'n*).

268. *Cont'l Wall Paper Co. v. Louis Voight & Sons Co.*, 212 U.S. 227, 262 (1909); see also *Andrx Pharm., Inc. v. Friedman*, 83 F. Supp. 2d 179, 185-87 (D.D.C. 2000), *aff'd in part, rev'd in part sub nom. Andrx Pharm., Inc. v. Biovail Corp.* Int'l, 256 F.3d 799, 809-10 (D.C. Cir. 2001); *Blackburn v. Sweeney*, 53 F.3d 825, 828 (7th Cir. 1995).

269. 15 U.S.C. §§ 41-77 (2012); *To Promote Innovation: The Proper Balance of Competition and Patent Law*, *supra* note 8; *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*, *supra* note 8; *In re Rambus, Inc.*, No. 9302, slip op. at 6 (FTC Feb. 2, 2007), available at <http://www.ftc.gov/os/adjpro/d9302/070205opinion.pdf>.

5. Extortionate Pricing of Patent Licenses

There are economists who conclude that patent and/or copyright laws may harm consumers and infringers more than they benefit inventors and their employees.²⁷⁰ However, there are several more targeted remedies that could relieve infringers and the public from the anticompetitive impact of patents, other than indiscriminately stripping inventors of their rights with strict filing rules, high costs, or successive challenges.

First, the DOJ, Department of Health and Human Services, Medicare and Medicaid, and/or the FTC could be empowered by statute to ensure fair prices and reasonable and nondiscriminatory royalty rates. Similar legislation was effective in the electricity and telecommunications sectors.²⁷¹ In areas where competition does not ensure affordable royalties, regulation may be in order.

Second, the courts might order divestiture of Intellectual Ventures or other patent aggregators who accumulate or exercise undue economic power because of their extensive patent portfolios.²⁷² Section 7 of the

270. See, e.g., Peter S. Menell, *Intellectual Property: General Theories*, in 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 130 (Boudewijn Bouckaert & Gerrit de Geest eds., 1999) (describing studies); INTELLECTUAL PROPERTY AND DEVELOPMENT: LESSONS FROM RECENT ECONOMIC RESEARCH (Carsten Fink & Keith E. Maskus eds., 2005) (describing more recent studies); Jonathan B. Baker, *Beyond Schumpeter vs. Arrow, How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575, 583-86 (2007).

271. See *Otter Tail Power Co. v. United States*, 410 U.S. 366, 375-76 (1973) (describing the authority granted under the Power Act to the Federal Power Commission to regulate high electrical rates and also describing refusals to transmit or “wheel” electricity); *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2014) (describing the authority granted by the Communications and Telecommunications Acts to the Federal Communications Commission to regulate wholesale access to the telecommunications networks and unbundled network elements); *Commission Notice on the Application of the Competition Rules to Access Agreements in the Telecommunications Sector*, 1998 O.J. (C 265) 2 (describing efforts similar to the Telecommunications Act in European Communities); Council Directive (EEC) No. 90/547 of 29 Oct. 1990, On the Transit of Electricity through Transmission Grids, 1990 O.J. (L 313) 30 (describing efforts similar to the Power Act in European Communities); Spencer Weber Waller, *Areeda, Epithets, and Essential Facilities*, 2008 WIS. L. REV. 359, 364-85 (surveying this body of law); see also Brett Frischmann & Spencer Weber Waller, *Revitalizing Essential Facilities*, 75 ANTITRUST L.J. 1 (2008) (same); Albert A. Foer, *Electricity: Notes on the Transition Phase*, 33 LOY. U. CHI. L.J. 813 (2002); John T. Soma et al., *The Essential Facilities Doctrine in the Deregulated Telecommunications Industry*, 13 BERKELEY TECH. L.J. 565, 606 (1998).

272. See *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001), for a discussion of this option after Microsoft allegedly misused copyrights and patents of itself and University of Illinois/Spyglass to engage in exclusionary conduct, maintain a monopoly, and-potentially-to tie different copyrights or patents together. Combinations, mergers, and other restraints of trade “warrant scrutiny even in the absence of incipient monopoly” because they “not only reduce[] the diverse directions in which economic power is aimed but suddenly increase the economic power moving in one particular direction.” *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 769 (1984). Section 7 of the Clayton Act bars mergers the effect of which “may be

Clayton Act would justify such a remedy if it could be shown that a portfolio had been assembled through assignments or exclusive licenses which, by their nature and even if legitimately enforced, are likely to create a monopoly or to lessen competition in a relevant market.²⁷³ By increasing the number of licensors in the market, courts have the power to expand licensing, reduce rates, and improve the quality of inventions.²⁷⁴

Third, the courts might declare a refusal to license a patent on reasonable terms to be an attempt or conspiracy to monopolize, a monopolization, a combination to restrain trade, or a restraint of trade, and might then enjoin particular conduct.²⁷⁵ Private parties could then obtain treble damages by follow-on litigation.²⁷⁶ However, the party would need to show that there was an absence of acceptable substitutes for the patented technology, because the mere existence of a patent does not create a market monopoly.²⁷⁷

substantially to lessen competition, or to tend to create a monopoly.” 15 U.S.C. § 18 (2012). It addresses “monopolistic tendencies in their incipiency and well before they have attained such effects as would justify a Sherman Act proceeding.” S. REP. NO. 81-1775, at 4-5 (1950), *reprinted in* 1950 U.S.C.C.A.N. 4293, 4296; *see, e.g.*, *AlliedSignal, Inc. v. B.F. Goodrich Co.*, 183 F.3d 568 (7th Cir. 1999) (three to two merger has anticompetitive or monopolistic tendency); *see also* U.S. Dep’t of Justice & Fed. Trade Comm’n, *Horizontal Merger Guidelines*, U.S. DEP’T JUST. §§ 0.1, 1.52, 1.521, <http://www.justice.gov/atr/public/guidelines/hmg.htm>. (last updated Apr. 8, 1997).

273. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, No. 1:13-cv-00740 (AJT/TRJ), 2013 U.S. Dist. LEXIS 177836, at *29-30 (E.D. Va. Dec. 18, 2013).

274. *See, e.g.*, *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1073-80 (D.D.C. 1997); *In re Columbia/HCA Healthcare Corp.*, 120 F.T.C. 743 (1995); RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 203-33 (1976); RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 229-38 (2d ed. 2002); Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals’ Costs To Achieve Power over Price*, 96 YALE L.J. 209, 214 (1986); Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 484 (1998).

275. *See, e.g.*, *Microsoft*, 253 F.3d at 64 (holding that Microsoft could be restrained from using its intellectual property like a “baseball bat” to undermine competition); *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C. Cir. 1998) (describing the process whereby Microsoft was enjoined by consent decree from engaging in per-processor copyright and patent licenses, among other things), *further proceedings at* No. 98-1232 (CKK) (D.D.C. Nov. 12, 2002) (consent decree), *available at* <http://www.usdoj.gov/atr/cases/f200400/200457.pdf>; *Associated Press v. United States*, 326 U.S. 1 (1945) (describing why the Associated Press needed to be enjoined from denying access to the collective output of major American newspapers to new entrants in press markets).

276. *See supra* note 203 and accompanying text; *Dickson v. Microsoft Corp.*, 309 F.3d 193 (4th Cir. 2002).

277. *See Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 177-78 (1965) (holding that even a fraudulently obtained patent does not violate section 2 of the Sherman Act standing alone, because competition may not be significantly harmed where there are effective unpatented substitutes for the product or service at issue); *see also* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 42-49 (2006) (holding that a patent does not necessarily confer market power); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. at 37 n.7 (O’Connor, J., concurring) (“A common misconception has been that a patent or copyright, a high market share, or a unique product that competitors are not able to offer suffices to demonstrate market power.”),

Finally, the FTC has the authority to prevent and to obtain restitution for unfair methods of competition, including monopolization and other restrictions on competition related to patents.²⁷⁸ It will not necessarily be easy to challenge patent aggregation, patent threats, or overpriced patent licenses, however. Licensing the patent rights to a particular technology is usually not a distinct relevant market.²⁷⁹ Instead, a market involves a domain of competition among reasonably interchangeable products, which often manifest a cross-elasticity of demand as a group.²⁸⁰ As one court held in declining to define a market that covered a portfolio of financial services patents, such a market may include “the available substitutes for the technologies included within that proposed market or that . . . all pertain to the same aspects of the commercial banking operations. . . .”²⁸¹ Even if there were no substitutes for a particular patent or portfolio, many antitrust challenges would require plausible allegations that the royalty fees demanded or received were supracompetitive as compared to some reasonable royalty or

abrogated by In re Independent Serv. Orgs. Antitrust Litig., 203 F.3d 1322, 1325 (“A patent alone does not demonstrate market power.”); *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1368 (Fed. Cir. 1998) (“The virtually unlimited variety and scope of patented inventions and market situations militate against per se rules in these complex areas.”); *USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505, 511 (7th Cir. 1982) (“[N]ot every patent confers market power” (citing *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1203 (2d Cir. 1981))); *see also* U.S. Dep’t of Justice & Fed. Trade Comm’n, *supra* note 272, § 2.2 (“Although the intellectual property right confers the power to exclude with respect to the specific product, process, or work in question, there will often be sufficient actual or potential close substitutes for such product, process, or work to prevent the exercise of market power.”); FTC, *EVOLVING IP MARKETPLACE*, *supra* note 8.

278. *Report and Recommendations*, ANTITRUST MODERNIZATION COMM’N (2007), http://www.amc.gov/report_recommendation/amc_final_report.pdf; *Broadband Connectivity Competition Policy Staff Report*, FED. TRADE COMM’N 30-31 (2007), <http://www.ftc.gov/reports/broadband/v070000report.pdf>; Robert Pitofsky, Former Chairman, *Prepared Remarks, Antitrust Analysis in High-Tech Industries: A 19th Century Discipline Addresses 21st Century Problems*, FED. TRADE COMM’N (Feb. 25, 1999), <http://www.ftc.gov/speeches/pitofsky/hitch.htm>; *see also* Aaron M. Wigod, Comment, *The AOL-Time Warner Merger: An Analysis of the Broadband Internet Access Market*, 6 J. SMALL & EMERGING BUS. L. 349, 363-66 (2002).

279. *See, e.g., Intellectual Ventures I*, 2014 U.S. Dist. LEXIS 177836, at *14-15.

280. *See Ill. Tool Works*, 547 U.S. at 42-43 (defining relevant market); *Theme Promotions, Inc. v. News Am. Mktg. FSI*, 539 F.3d 1046, 1052-54 (9th Cir. 2008) (discussing the fact that assessment of relevant market may involve economic analysis of “cross-elasticity of demand,” meaning the “percentage change in quantity that consumers will demand of one product in response to a percentage change in the price of another,” and a ““small but significant nontransitory increase in price” (‘SSNIP’) analysis” regarding other products) (citing *Forsyth v. Humana, Inc.*, 114 F.3d 1467, 1475 (9th Cir. 1997), *overruled in part by* *Lacey v. Maricope County*, 693 F.3d 896 (9th Cir. 2012), *amended and superseded by* 546 F.3d 991 (9th Cir. 2008); *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal. 2004)); *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1353 (Fed. Cir. 1999) (discussing “relevant market” as referring to an area of competition).

281. *Intellectual Ventures I*, 2013 U.S. Dist. LEXIS 177836, at *15-16.

damages model charged by comparable patent licensors.²⁸² Insofar as mere possession of a monopoly is not necessarily unlawful, a claim founded on NPE or PAE patent licensing might succeed if the licensor pursued sham claims in specific cases, destroyed a competitor, or foreclosed trade.²⁸³ The mere fact that the patent owner accepted less in royalties in another settlement may not be enough to show extortionate licensing for purposes of destroying competition or pursuing sham litigation, however. That is because a royalty accepted under the burden of litigation or routine infringement may be depressed.²⁸⁴

V. CONCLUSION

Using the patent system, inventors turn their products, solutions, and services into liquid assets such as cash or stock. Recourse to patent protection has risen hand in hand with economic and technological progress in the United States. Anecdotal and statistical evidence suggests that entrepreneurs place hope in the patent system to empower them to raise capital, secure a return on R&D, and engage in long-term innovation.

282. See *id.* at 19-21.

283. See *id.* at 22-24; see also *Rambus Inc. v. FTC*, 522 F.3d 456, 466 (D.C. Cir. 2008) (holding that the patentee did not necessarily monopolize trade in certain computer memory components by hiding its patent applications from those negotiating a memory-related computer industry standard, because the patentee's evasion of the negotiators' desire to reduce patent royalties owed by users of standard did not mean that this "lawful monopolist's end-run around price constraints" harmed competition); *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1327-28 (Fed. Cir. 2000) ("We [generally] will not inquire into [a patentee's] subjective motivation for exerting his statutory rights, even though his refusal to sell or license his patented invention may have an anticompetitive effect, so long as that anticompetitive effect is not illegally extended beyond the statutory patent grant.").

284. See *Deere & Co. v. International Harvester Co.*, 710 F.2d 1551, 1556 (Fed. Cir. 1983) ("[P]roposition[s] that a single license, paid or secured by one, relatively minor competitor after the onset of the complained infringement, may be rejected as a measure of damages against an infringer[, and when a] license [is] negotiated against a backdrop of continuing litigation and [patent] infringement . . . , the district court could properly discount the probative value of the . . . license with regard to a reasonable royalty.") (citing *Rude v. Westcott*, 130 U.S. 152, 165 (1889); *Saf-Gard Prods., Inc. v. Serv. Parts*, 491 F. Supp. 996, 1008 (D. Ariz. 1980); *Tights, Inc. v. Kayser-Roth Corp.*, 442 F. Supp. 159, 164-65 (M.D.N.C. 1977)); see also *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1577 (Fed. Cir. 1995) (Nies, J., dissenting) ("Although licenses extracted under the penumbra of threatened litigation as to the validity and/or infringement are . . . 'not an accurate gauge of a reasonable royalty,' . . . this rule does not apply where, as here, validity and infringement appear to have been settled in the licensor's favor when the license was entered."); *Studiengesellschaft Köhle, m.b.H. v. Dart Indus., Inc.*, 862 F.2d 1564, 1571-72 (Fed. Cir. 1988) (suggesting that settlements to resolve litigation, or offers to license in context of widespread infringement, are less relevant in defining a reasonable royalty than is a license negotiated in settlement of litigation in which an appeals court has concluded that licensor's patent valid and infringed by licensee).

Recent efforts such as the Innovation Act threaten to diminish the incentive to innovate in the name of reining in abuses of the process. More narrowly tailored alternatives to these efforts are available in the Patent Act of 1952, the Sherman Antitrust Act, the Federal Trade Commission Act, and other statutes. These laws declare that abstract or obvious inventions are unpatentable, that unfair methods of extracting unreasonable royalties are unlawful, and that monopolies and conspiracies to restrain trade are subject to divestiture of assets and treble damages for victims of such acts. Infringers and those charged with protecting the public interest should avail themselves of these targeted remedies, rather than indiscriminately attacking innovators who attempt to earn a living on R&D labor. Patents should be alienable by their inventors.