

**PATENT REFORM AND DAMAGES APPORTIONMENT:
ADDRESSING THE CONCERNS OF INDUSTRY-SCALE USERS
OF THE U.S. PATENT SYSTEM WITHOUT LEGISLATIVELY
MANDATING A “SPECIFIC CONTRIBUTION OVER THE
PRIOR ART”**

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I. INTRODUCTION

A controversial debate within United States patent law shows no signs of a quick resolution and divides inventors, companies, and practitioners in the field. Within a broader discussion of patent reform, issues about damages awards for patent infringement continue to be contentious. On one side, interested parties argue that modern legislation is needed to control the costs of litigation and tighten the standards for calculating damages awards.¹ On the other side, opponents counter that no evidence indicates that damages reform is necessary.² The outcome will significantly affect a number of industries involved with the patent system.

Under U.S. patent law, which is the source of the damages debate, the rights of inventors and patentees tend to expand and contract over time.³ Although patent rights have strengthened over the

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¹ See, e.g., *Patent Reform in the 111th Congress: Legislation and Recent Court Decisions: Hearing Before the S. Comm. on the Judiciary*, 111th Cong. 5–8 (2009) [hereinafter *Patent Reform*] (statement of Steven R. Appleton, Chairman & Chief Executive Officer, Micron Technology, Inc.), available at http://www.patentfairness.org/pdf/appleton_20090310.pdf.

² See, e.g., *id.* at 11–13 (statement of Philip S. Johnson, Chief Intellectual Property Counsel, Johnson & Johnson), available at http://www.patentmatter.com/issue/pdfs/20090310_johnson_testimony.pdf.

³ Compare *Diamond v. Chakrabarty*, 447 U.S. 303, 307, 309, 310 (1980) (construing patentable subject matter under 35 U.S.C. § 101 broadly to include a human-made strain of bacteria), with *In re Bilski*, 545 F.3d 943, 949, 951, 963–66 (Fed. Cir. 2008) (en banc) (holding that a “method of hedging risk in the field of commodities

last several decades,⁴ the scope of those rights has begun to narrow. One important sign of this trend is a series of opinions by the Supreme Court of the United States that shrink the sphere of patent protection.⁵ Other recent developments include several congressional attempts at legislative patent reform.⁶ Legislative-reform proposals are especially noteworthy, as the present patent laws date back to the Patent Act of 1952.⁷

Although patent-reform efforts stalled in the past, the value of intellectual property to the United States promises major changes.⁸ Indeed, the Patent Reform Act of 2009 (2009 Act),⁹ demonstrates by

trading” is not patentable subject matter), *cert. granted*, 129 S. Ct. 2735 (2009). Notably, one judge in *Bilski* suggested that the oft-quoted statement that patentable subject matter “include[s] anything under the sun that is made by man,” *Chakrabarty*, 447 U.S. at 309 (quoting S. REP. NO. 82-1979, at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952)) (internal quotations omitted), was based on a misreading of legislative records. *In re Bilski*, 545 F.3d at 1000 (Mayer, J., dissenting).

⁴ See generally *Chakrabarty*, 447 U.S. 303.

⁵ See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401–02, 415, 418–19 (2007) (rejecting the teaching-suggestion-motivation test as sole way of proving obviousness); *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 128–29, 137 (2007) (holding that a licensee of a patent need not breach or terminate license agreement before seeking declaratory judgment against licensor); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–93 (2006) (holding that the traditional four-part test for injunctive relief must be satisfied before an injunction is granted and that a finding of infringement alone is insufficient); *In re Seagate Tech., L.L.C.*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) (finding that willful infringement requires objective recklessness), *cert. denied*, 128 S. Ct. 1445 (2008).

⁶ See Patent Reform Act of 2009, S. 610, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 17, 2009); Patent Reform Act of 2009, S. 515, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2007, H.R. 1908, 110th Cong. (2007) (as passed by House of Representatives, Sept. 7, 2007); Patent Reform Act of 2007, S. 1145, 110th Cong. (2007); Patent Reform Act of 2006, S. 3818, 109th Cong. (2006); Patent Reform Act of 2005, H.R. 2795, 109th Cong. (2005).

⁷ Patent (Bryson) Act of 1952, ch. 950, 66 Stat. 792 (1952) (codified as amended at 35 U.S.C. §§ 1–376 (2006)).

⁸ See *infra* notes 34–35 and accompanying text.

⁹ Patent Reform Act of 2009, S. 610, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 17, 2009); Patent Reform Act of 2009, S. 515, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009). This Comment discusses damages apportionment, which is frequently present in Congress’s attempts to reform damages awards. The Senate Committee on the Judiciary retreated from mandatory apportionment in an amended version of the 2009 Act, which was introduced to the full Senate in April 2009. See S. REP. NO. 111-18, at 34–35 (2009). The amended bill would allow judges flexibility where mandatory apportionment would not because judges would have a “gatekeeper” role. Stephanie Condon, *Senate Panel Approves Patent Reform Bill*, CNET

its mere existence, as well as its detailed provisions, that Congress appreciates the value of intellectual property. In its various forms, the 2009 Act comprehensively addresses various reform-centric topics, including filing priority,¹⁰ post-grant procedures,¹¹ and remedies, most particularly the damages provisions.¹² The 2009 Act, which is Congress's fourth attempt at patent reform in recent years,¹³ ensures that patent reform will continue to be a source of lively debate for years to come.¹⁴ The persistence of legislators, lobbyists, and commentators alike in discussing the shape and propriety of reform reflects the potentially major effects of legislative change on industry-scale users of the patent system.

In any discussion about patent reform, questions about the proper assessment and calculation of patent-infringement damages are apt to arise. The United States Code, which governs patent law and procedure, permits damages as one type of remedy for patent infringement.¹⁵ Generally, a patentee may seek compensatory damages,

NEWS, Apr. 2, 2009, http://news.cnet.com/8301-13578_3-10210824-38.html (internal quotation marks omitted). While the amended bill is certainly a positive development, apportionment is still a part of the recent bill introduced in the House of Representatives and repeatedly appeared in earlier reform efforts. See H.R. 1260 § 5(a); see also sources cited *infra* note 26. Consequently, for discussion purposes, this Comment assumes that Congress will, at some point, legislatively mandate apportionment. Thus, citations to the Senate bill generally will refer to the version that contained mandatory apportionment. And even if Congress passes a bill without mandatory apportionment, the debate over the propriety of the approach would likely continue. Representatives of several major technology companies expressed approval of the amendments, but they seemed to expect that more changes would be forthcoming. See Condon, *supra*.

¹⁰ Patent Reform Act of 2009, S. 610, 111th Cong. § 2 (2009) (as referred to S. Comm. on the Judiciary, Mar. 17, 2009); Patent Reform Act of 2009, S. 515, 111th Cong. § 2 (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); H.R. 1260 § 3.

¹¹ S. 610 § 5; S. 515 § 5; H.R. 1260 § 6.

¹² S. 610 § 4; S. 515 § 4; H.R. 1260 § 5.

¹³ Congress made several attempts that did not become law. See Patent Reform Act of 2007, H.R. 1908, 110th Cong. (2007); S. 1145, 110th Cong. (2007); Patent Reform Act of 2006, S. 3818, 109th Cong. (2006); Patent Reform Act of 2005, H.R. 2795, 109th Cong. (2005).

¹⁴ The House passed its version of the Patent Reform Act of 2007. See H.R. 1908. The Senate version of the 2007 Act, however, stalled in committee after senators disagreed on the method of awarding damages in patent infringement suits. Andrew Noyes, *Senators Close to Reintroducing Patent Overhaul Measure*, CONGRESSDAILY, Jan. 30, 2009, http://www.nationaljournal.com/congressdaily/cdp_20090130_2218.php.

¹⁵ 35 U.S.C. § 284 (2006). Title 35 also permits injunctions as a patent-infringement remedy. § 283. Because the standard for an award of injunctive relief for patent infringement has recently become higher and the area remains in flux, see *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–94 (2006), injunctions as a pa-

and the infringer's gain or loss is not a factor.¹⁶ The damages remedy is then broken down into two subcategories: lost profits and reasonable royalties.¹⁷ The second subcategory, reasonable royalties, represents the minimum amount of a damages award.¹⁸

The case for damages reform in the context of a larger patent-reform package arises because of a perception that costs—litigation costs and high damages awards—are excessive. In the realm of patent-infringement lawsuits, a number of parties, including industry insiders and legal commentators,¹⁹ have expressed concern about the cost of litigation and the amount of damages awards.²⁰ In its most recent attempt to effectuate damages reform, Congress initially proposed statutory damages apportionment in the 2009 Act.²¹ This effort

tent-infringement remedy merits detailed consideration largely beyond the scope of this Comment.

¹⁶ *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978) (quoting *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964)).

¹⁷ *Id.* (discussing lost profits); § 284 (discussing reasonable royalties).

¹⁸ § 284 (stating that upon an infringement judgment, a court must award compensatory damages that are “in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court”).

¹⁹ See, e.g., *Patent Reform*, *supra* note 1, at 5–8 (statement of Steven R. Appleton); see also Coal. for Patent Fairness, Overview, <http://www.patentfairness.org/learn/about/> (last visited Sept. 27, 2009) (providing that Micron Technology, Inc. is a company that belongs to the Coalition for Patent Fairness, a group comprised of numerous companies in support of patent reform).

²⁰ See, e.g., Christopher A. Harkins, *Fending Off Paper Patents and Patent Trolls: A Novel “Cold Fusion” Defense Because Changing Times Demand It*, 17 ALB. L.J. SCI. & TECH. 407, 434 (2007) (citing AM. INTELLECTUAL PROP. LAW ASS'N (AIPPLA), REPORT OF THE ECONOMIC SURVEY (2005)) (“Patent litigation is outrageously expensive, driven in part by the complexities of the technical and legal issues, uncertainties of claim scope, and the amount at stake.”); see also FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY: A REPORT BY THE FEDERAL TRADE COMMISSION ch. 1, at 20 n.135 (2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf> (noting the argument that “money damages have soared . . . both on average and in the highest-visibility cases” since the Federal Circuit's creation (quoting ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW & POLICY: CASES AND MATERIALS 11 (3d ed. 2002))).

²¹ Patent Reform Act of 2009, S. 515, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009). Senator Kyl's version would not mandate apportionment. Patent Reform Act of 2009, S. 610, 111th Cong. (2009) (as referred to S. Comm. on the Judiciary, Mar. 17, 2009). This Comment defines apportionment generally as “the requirement that a patentee's recovery be based on the economic value contributed by the patent.” Eric E. Bensen & Danielle M. White, *Using Apportionment to Rein in the Georgia-Pacific Factors*, 9 COLUM. SCI. & TECH. L. REV. 1, 3 (2008), <http://www.stlr.org/cite.cgi?volume=9&article=1> (citing Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cas-*

mirrors a similar push to implement mandatory apportionment in the Patent Reform Act of 2007 (2007 Act),²² which would have limited courts' and, consequently, juries' discretion in reasonable royalty calculations. Like the 2007 Act,²³ the 2009 Act addresses an amended form of the judicially created "entire market value" rule.²⁴ This rule applies when a patentee wants a damages award to incorporate the value of a total product, whether or not the patent covers all components, and requires that the reason users sought the infringing product within the market be the patented component.²⁵

The 2009 Act arrived on the heels of three previous attempts at reform.²⁶ The fact that Congress included the idea of damages apportionment in each of the previous reform bills indicates that a discussion of whether apportionment is indeed an appropriate response is timely and necessary,²⁷ though Congress has begun to recognize the divisiveness of the idea.²⁸ Although the House of Representatives version and the first Senate version of the 2009 Act suggest two other methods of calculating a damages award—the entire-market-value

es, 10 VA. J.L. & TECH. 8 (2005), http://www.vjolt.net/vol10/issue3/v10i3_a8-Bensen.pdf).

²² Patent Reform Act of 2007, H.R. 1908, 110th Cong. § 5 (2007) (as passed by House of Representatives, Sept. 7, 2007); Patent Reform Act of 2007, S. 1145, 110th Cong. § 5 (2007) (as referred to S. Comm. on the Judiciary, Apr. 18, 2007).

²³ H.R. 1908 § 5; S. 1145 § 5.

²⁴ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (adding 35 U.S.C. § 284(c)(1)(A)); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (adding 35 U.S.C. § 284(c)(1)(A)). Senator Kyl's version does not expressly mention the entire-market-value rule. Patent Reform Act of 2009, S. 610, 111th Cong. § 4 (2009). But Senator Kyl's version leaves room for its application by permitting consideration of any relevant factors in "determination of the amount of a reasonable royalty" though consideration would take place in the context of a hypothetical license negotiation *Id.* § 4 (adding 35 U.S.C. § 284(b)–(c)).

²⁵ *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1549–50 (Fed. Cir. 1995) (en banc).

²⁶ Patent Reform Act of 2007, H.R. 1908, 110th Cong. § 5 (2007) (as passed by House of Representatives, Sept. 7, 2007); Patent Reform Act of 2007, S. 1145, 110th Cong. § 5 (2007) (as referred to S. Comm. on the Judiciary, Apr. 18, 2007); Patent Reform Act of 2006, S. 3818, 109th Cong. § 5 (2006) (wherein reasonable-royalty calculations involve consideration of "the economic value that should be attributed to the novel and non-obvious feature or features of the invention, as distinguished from the economic value attributable to other features"); Patent Reform Act of 2005, H.R. 2795, 109th Cong. § 6 (2005) (stating that a reasonable royalty calculation for combination inventions shall involve consideration of, *inter alia*, "the portion of the realizable profit that should be credited to the inventive contribution as distinguished from other features of the combination").

²⁷ *Id.*

²⁸ See *supra* note 9.

rule and an “established royalty based on marketplace licensing”²⁹—apportionment is still the standard under these proposals for “valuation calculation” if the patent owner cannot show either of these two methods for calculating a damages award.³⁰ Because a patentee will not claim the entire market value of a product in every case and because an established royalty may not exist, apportionment would affect a sizeable number of damages awards if passed into law.

This Comment asserts that industry-specific patenting needs demand retention of a fact-specific judicial approach to calculating infringement damages. Any legislative changes, now or in the future, should be minor and must avoid accommodating the requirements of one industry over others. While a certain degree of limitation on damages awards may be appropriate in a reform-minded climate, the mandatory apportionment method is an ineffective, unfair means of accomplishing this end. Any legislative reform should complement, not supersede, the current approach, which relies on courts to calculate damages based on the facts of each case. This Comment outlines how the courts have effectively accomplished this task by accommodating the existing patent laws to the needs of various industries’ inventions. This Comment also suggests how to preserve the industry-accommodating approach with legislation that is less divisive than apportionment and explains why that course is preferable.

Legislatively mandated apportionment of damages is not the proper approach for controlling damages awards primarily because apportionment lends itself more readily to technology-based inventions rather than chemical- or pharmaceutical-based inventions.³¹ Indeed, the Senate Committee on the Judiciary recognized the impropriety of apportionment after numerous meetings with representatives of affected industries.³² If codified, compulsory apportionment would limit courts’ freedom to fashion remedies that reflect the diverse needs of the various industries that use the patent system and that invoke the jurisdiction of the court for infringement matters. Mandatory apportionment would replace the time-tested,

²⁹ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. §§ 284(c)(1)(A)–(B)); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. §§ 284(c)(1)(A)–(B)).

³⁰ S. 515 § 4(a) (adding 35 U.S.C. § 284(c)(1)(C)); H.R. 1260 § 5(a) (adding 35 U.S.C. § 284(c)(1)(C)).

³¹ See, e.g., Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308, 2330 (1994) (“Innovation in software development is typically incremental.”); see also *infra* Parts II.B., III.C.

³² See Condon, *supra* note 9; see also S. REP. NO. 111-18, at 9–10, 34–35 (2009).

industry-specific analysis of the patented invention with an inflexible, artificial contemplation of “the claimed invention’s specific contribution over the prior art.”³³ If changes to the current approach are necessary, alternatives to the apportionment scheme exist. One alternative involves eliminating the statutory minimum award of a reasonable royalty. This minor change could accompany a statutory-damages framework borrowed from copyright law but adapted to the needs of patentees. This approach would, to a much greater extent than apportionment, ensure a more consistent effect on all industries using the patent system.

To illustrate these principles and suggestions, Part II outlines the dimensions of the debate. Part II.A provides background information regarding the foundations and procedure of the U.S. patent system. Part II.B describes relevant characteristics of industry-scale users of the patent system, the goals of those users, and the factors converging to prompt reform. Part III examines current statutes that minimize or obviate the need for additional reform, assesses current patent-infringement-damages jurisprudence, and suggests that formal, statutory deviation from this jurisprudence is unnecessary. This Part also considers the impact of mandatory damages apportionment on the various industries that use the patent system and provides normative reasons why this course is unfavorable. Part IV introduces viable alternatives to apportionment as a means of addressing concerns about the patent system. These alternatives complement the current judicial approach and include elimination of the reasonable-royalty floor and imposition of a statutory-damages regime. In Part V, this Comment concludes by suggesting that, instead of attempting to assuage the unilateral concerns of large technology companies by mandating damages apportionment, Congress should continue to permit the courts to craft invention- and industry-specific solutions to problems that arise on a case-by-case basis. Continued industry-specific jurisprudence and modest legislative enactments will address the patenting needs of all users without favoring large technology companies at the expense of the pharmaceutical industry.

³³ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)).

II. AN OVERVIEW OF THE UNITED STATES PATENT SYSTEM AND ITS INDUSTRY-SCALE USERS

A. *The Basic Structure of United States Patent Law and its Damages Provisions*

The United States patent system is a massive force with humble beginnings. The system wields enormous economic power and is monetarily immense—“valued at more than \$5 trillion”³⁴ by one estimate. It also has major trade value for the United States.³⁵ This important intellectual-property system derives from a simple constitutional grant of power to Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”³⁶ Congress capitalized on its power by permitting inventors to obtain patents on their creations so long as their patent applications satisfy the remaining Title 35 requirements.³⁷

The patent system operates on a give-and-take principle. Underlying the system is a goal of encouraging and rewarding progress in research and development by bestowing upon inventors a time-limited, exclusive right of use and ownership of their inventions.³⁸ In exchange, the public receives a benefit in the form of an invention disclosure, as well as access to the claimed technology when the patent terminates.³⁹ This idea of an exchange has long been present in patent jurisprudence.⁴⁰ For example, the Supreme Court indicated nearly two centuries ago that if the invention before the Court was already in the public domain or in the public’s “possession,” granting a patent on the invention would provide “no quid pro quo—no price

³⁴ Letter from Nathaniel F. Wienecke, Assistant Sec’y for Legislative and Intergovernmental Affairs, to Patrick J. Leahy, Chairman, Comm. on the Judiciary (Feb. 4, 2008), *available at* <http://www.ogc.doc.gov/ogc/legreg/letters/110/S1145020408.pdf>.

³⁵ See CRAIG JOYCE ET AL., COPYRIGHT LAW 2 (7th ed. 2006) (“The transfer of information has become an ever greater component of international trade and is the centerpiece of U.S. competitiveness. Unlike other sectors of the economy, in the area of intellectual property the United States is a net exporter—indeed, the world’s larger exporter by far.”).

³⁶ U.S. CONST. art. I, § 8, cl. 8.

³⁷ 35 U.S.C. § 101 (2006) (permitting the inventor of “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” to acquire a patent on it “subject to the conditions and requirements of this title”).

³⁸ S. REP. NO. 110-259, at 2 (2008).

³⁹ *Id.*

⁴⁰ See generally *Pennock v. Dialogue*, 27 U.S. (2 Pet.) 1 (1829).

for the exclusive right or monopoly conferred upon the inventor” for the patent term.⁴¹

As with other property rights, the patent monopoly connotes a negative right. Patents do not confer an affirmative right to practice the invention; they provide only a right to exclude others from doing so.⁴² The written patent document contains one or more claims, which are carefully crafted sentences at the end of a patent document that define the “metes and bounds of the patentee’s right to exclude.”⁴³ When an entity “makes, uses, offers to sell, or sells” an invention that embodies everything claimed in a patent without the permission of the patentee, that entity infringes the patent.⁴⁴ Even if the actor does not personally perform every step of the claim, the actor may be liable for active inducement of infringement or contributory infringement⁴⁵ as long as some entity somewhere is directly infringing the patent.⁴⁶

After a court decides that a defendant infringed a patent, the damages provisions enter the picture.⁴⁷ Section 284 of Title 35 “paints the criteria for the fixing of damages in broad strokes,” provided, however, that the awarded amount is at least a reasonable royalty.⁴⁸ Currently, courts may consider a multitude of factors and

⁴¹ *Id.* at 23.

⁴² The patent law, under 35 U.S.C. § 154(a)(1), reads as follows:

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

Id.

⁴³ F. SCOTT KIEFF ET AL., PRINCIPLES OF PATENT LAW: CASES AND MATERIALS 90 (4th ed. 2008).

⁴⁴ § 271(a).

⁴⁵ *Id.* § 271(b)–(c).

⁴⁶ See, e.g., *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 341–42 (1961) (stating that “there can be no contributory infringement” without direct infringement); *C.R. Bard, Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 673 (Fed. Cir. 1990) (citing *Met-Coil Sys. Corp. v. Korners Unlimited, Inc.*, 803 F.2d 684, 687 (Fed. Cir. 1986); *Standard Oil Co. v. Nippon Shokubai Kagaku Kogyo Co.*, 754 F.2d 345, 348–49 (Fed. Cir. 1985); *Aro Mfg. Co.*, 365 U.S. at 341) (stating that “a finding of induced or contributory infringement must be predicated on a direct infringement”).

⁴⁷ § 284.

⁴⁸ *England v. Deere & Co.*, 221 F. Supp. 319, 322 (S.D. Ill. 1963).

elements as each case warrants.⁴⁹ Two primary types of judicially created damages awards have emerged in response to the liberal statutory framework for infringement damages. The first is the lost-profits measure, which depends on the patentee's profits, ignores the alleged infringer's profits, and examines "(1) demand for the patented product, (2) absence of acceptable non-infringing substitutes, (3) [the patentee's] manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit [the patentee] would have made."⁵⁰

Where unable to prove actual damages for calculation of lost profits, the plaintiff's second option is to seek reasonable royalties.⁵¹ "A reasonable royalty is [the] amount" that a person who wants to use the patented invention "would be willing to pay as a royalty and yet be able to make and sell the patented article, in the market, at a reasonable profit."⁵² Typically, the operative calculus entails consideration of factors that "prudent businessmen" would consider in structuring a "hypothetical license" involving the patented invention.⁵³ Interestingly, one factor explores "[t]he utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results."⁵⁴ Another factor is expert testimony,⁵⁵ common in the reasonable-royalty calculus. Traditionally, reasonable royalties were the exceptional measure of damages while lost profits were the mainstay.⁵⁶ But reasonable royalties may have overcome lost profits as the most common form of damages award for infringement.⁵⁷ This possibility underscores the significance of legislative reform that aims to change the way reasonable royalties are calculated.

Under either a lost-profits or a reasonable-royalty calculation, a patentee can seek damages in the amount of the entire market value

⁴⁹ *Id.*

⁵⁰ *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978).

⁵¹ *Id.* at 1157.

⁵² *Id.* at 1157-58 (quoting *Goodyear Tire & Rubber Co. v. Overman Cushion Tire Co.*, 95 F.2d 978, 984 (6th Cir. 1937)).

⁵³ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120-1121 (S.D.N.Y. 1970), *modified on other grounds*, 446 F.2d 295 (2d Cir. 1971).

⁵⁴ *Id.* at 1120.

⁵⁵ *Id.*

⁵⁶ *See* S. REP. NO. 110-259, at 11 & n.42 (2008).

⁵⁷ *Id.* at 11 n.42.

of the infringing product or process.⁵⁸ In entire-market-value analysis, a patentee suing for infringement on a product embodying his claimed invention, along with unpatented components, must show that the components or elements covered by the patent were the “basis for customer demand” of the purportedly infringing product.⁵⁹ In the absence of such a showing, the patentee’s infringement recovery is proportionately lower.

B. The Characteristics, Goals, and Reform Perspectives of Industry-Scale Users of the Patent System

Many diverse industries utilize the patent system. Two of the most prominent industries are, first, the “Big Pharma sector,”⁶⁰ which for the purposes of this Comment encompasses major pharmaceutical, biological, and chemical companies, and, second, the “Big Tech industries,”⁶¹ which include computer, software, and high-technology entities. The companies in these two industries respectively produce dissimilar inventions and have different reasons for using the patent system.⁶² As a result, their interests place them on opposite sides of a debate over patent reform,⁶³ with technology companies advocating for legislative limitations on damages awards and pharmaceutical companies suggesting that limitations would be superfluous. This Part provides a generalized sketch of the industries’ relevant characteristics.

The science-based, specifically pharmaceutical, disciplines are generally pro-patent, given the nature of the typical invention and the long journey to the market. A representative invention of the chemical or pharmaceutical industry might be a pharmaceutical drug, a genetic or proteomic fragment, or other chemical composition, and research tends to be cumulative rather than incremental.⁶⁴

⁵⁸ See *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1549–50 (Fed. Cir. 1995) (en banc); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580 (Fed. Cir. 1989).

⁵⁹ *Rite-Hite Corp.*, 56 F.3d at 1549 (quoting *State Indus., Inc.*, 883 F.2d at 1580; *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 900–01 (Fed. Cir. 1986)) (internal quotation marks omitted).

⁶⁰ Clarisa Long, *Our Uniform Patent System*, 55 FED. LAW. 44, 45 (2008) (internal quotation marks omitted).

⁶¹ *Id.* at 44–46 (internal quotation marks omitted). These companies, such as “Microsoft, Apple, Google, and Cisco,” support the proposed reform. *Id.* at 47.

⁶² See, e.g., Editorial, *Patently Ridiculous*, N.Y. TIMES, Mar. 22, 2006, at A24.

⁶³ Long, *supra* note 60, at 45.

⁶⁴ See Arti K. Rai, *Fostering Cumulative Invention in the Biopharmaceutical Industry: The Role of Patents and Antitrust*, 16 BERKELEY TECH. L.J. 813, 815–16 (2001). There may be some incremental invention in the pharmaceutical realm, but the benefits

Major pharmaceutical companies are usually infringement plaintiffs and often sue generic-drug makers.⁶⁵ Some commentators suggest that pharmaceutical patents are “more frequently litigated than patents in other industries and are often for entirely new products.”⁶⁶ Additionally, the pharmaceutical industry needs a highly effective patent system,⁶⁷ as pharmaceutical inventions often take years and a great deal of capital to develop.⁶⁸ The patent system may even be essential to the continued vitality of major pharmaceutical companies’ research and development structure,⁶⁹ which emphasizes patents as a return on the research investment.⁷⁰ Often, businesses and investors need an incentive to undertake and fund scientific research,⁷¹ and patent law provides an opportunity for that incentive. Patents can provide a source of revenue through licensing or damages awards against infringers.

The features of the large technology companies supporting damages reform are very different from those of the pharmaceutical industry. The technology-based invention may be “incremental,”⁷² and inventions tend to be “new features and enhancements to existing products.”⁷³ Because technological innovation tends to be incremental, a company might need access to a tremendous number of pa-

appear less certain and “discrete innovation” seems to be dominant. *See* FED. TRADE COMM’N, *supra* note 20, ch. 3, at 4–9, 14. Certainly, the types of inventions in the pharmaceutical and technological industries may overlap to some extent, but broad generalizations are drawn here to outline the boundaries of the patent reform debate.

⁶⁵ Eric E. Williams, Note, *Patent Reform: The Pharmaceutical Industry Prescription for Post-Grant Opposition and Remedies*, 90 J. PAT. & TRADEMARK OFF. SOC’Y 354, 364–65 (2008).

⁶⁶ John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 137 (2002).

⁶⁷ John Markoff, *Two Views of Innovation Colliding in Washington*, N.Y. TIMES, Jan. 13, 2008, § 3, at 3.

⁶⁸ *See* Sheryl Gay Stolberg & Jeff Gerth, *In a Drug’s Journey to Market, Discovery is Just the First of Many Steps*, N.Y. TIMES, July 23, 2000, § 1, at 15.

⁶⁹ Long, *supra* note 60, at 45 (“Pharmaceutical research is a high-cost, highly uncertain process, with a final product that is cheap to reverse engineer, copy, and mass produce.”); *see also* *Patent Reform*, *supra* note 1, at 6 (statement of Philip S. Johnson).

⁷⁰ *See* Stolberg & Gerth, *supra* note 68; *see also* FED. TRADE COMM’N, *supra* note 20, ch.2, at 1; ch. 3, at 1, 4–9, 14.

⁷¹ Matthew T. Latimer, *Patenting Inventions Arising from Biological Research*, 6 GENOME BIOLOGY 203.1, 203.2–.3 (2004), available at <http://genomebiology.com/2004/6/1/203>.

⁷² Samuelson et al., *supra* note 31, at 2330; *see also* FED. TRADE COMM’N, *supra* note 20, Executive Summary, at 6; ch. 2, at 25–26.

⁷³ Eric E. Bensen, Commentary, *Patent Reform Act of 2007*, 2008 EMERGING ISSUES 529, at 5.

tented products for the creation of just one product.⁷⁴ If a patentee sues the company for infringement on the basis of that one product, the allegedly infringed patent may relate to a minor aspect of the device.⁷⁵ The holder of a patent purportedly covering that minor part of the product can effectively force the technology company to pay any demanded royalty by holding “hostage” the production of the device with infringement charges.⁷⁶ As a result, technology companies are “increasingly finding that the nation’s patent system has become a minefield,” and these companies want to “limit the leverage” of independent patent-holding inventors and patent trolls.⁷⁷ The companies may therefore seek broad patent protection on as much as they can to avoid possible infringement or licensing fees at a later date. This tactic, known as defensive patenting,⁷⁸ tends to create a “patent thicket,”⁷⁹ which may function as an obstacle to innovation.⁸⁰

For the major market players in the technology sector, the patent system may hamper, rather than spur, innovation. Many big technology companies may dismiss the patent system as overly constrictive because the companies instead can emphasize, for example, “market power and cross-licensing relationships” to advance development.⁸¹ Cross-licensing power provides companies an alternative means of invention valuation.⁸² The importance of licensing as an incentive also undermines the notion that litigation is too common in the large technology sector. Indeed, despite the fierce push for

⁷⁴ See FED. TRADE COMM’N, *supra* note 20, Executive Summary, at 6; ch. 3, at 30.

⁷⁵ Long, *supra* note 60, at 45.

⁷⁶ *Id.* at 46.

⁷⁷ Markoff, *supra* note 67, § 3, at 3. For a discussion of “patent trolls,” see *infra* notes 98–109 and accompanying text.

⁷⁸ See, e.g., Bensen, *supra* note 73, at 5; see also FED. TRADE COMM’N, *supra* note 20, Executive Summary, at 6; ch. 2, at 26.

⁷⁹ FED. TRADE COMM’N, *supra* note 20, Executive Summary, at 6 & n.20 (describing a patent thicket as a “dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology” (quoting Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119, 120 (Adam Jaffe et al. eds., 2001))).

⁸⁰ *Id.* at 6–7.

⁸¹ Markoff, *supra* note 67, § 3, at 3; see also FED. TRADE COMM’N, *supra* note 20, ch. 2, at 2 (suggesting the decreased importance of patents in “the semiconductor and communications industries”).

⁸² Long, *supra* note 60, at 45 (“Many technological sectors do not primarily rely on patents in order to capture the value of their inventions. Instead, they use patents defensively or as assets to bring to the table in a cross-licensing negotiation.”); see also FED. TRADE COMM’N, *supra* note 20, ch. 3, at 32–33 (discussing trade secrecy); ch. 3, at 31, 43, 44, 46, 56 (noting the role of competition).

reform deriving from the technology sector,⁸³ empirical research suggests that litigation is actually less frequent in technology-focused industries, where “royalty-free cross-licensing” is quite common.⁸⁴

For technology companies already uncomfortable with the patent system’s constraints, the relative ambiguity of the current damages provision is an additional problem that needs to be addressed in legislative reform. The current statute leaves the standards for a reasonable royalty to the courts, as they are not specified in the law itself.⁸⁵ Technology companies claim that this framework leads to exorbitant damage awards.⁸⁶

As may be evident from the above discussion, the divergent perspectives of pharmaceutical and large technology companies on the utility of patent protection lead to opposing views on the need for reform and on what shape such reform should take. Some suggest that patent reform incorporating damages apportionment favors major technology-based industries and their representative inventions.⁸⁷ According to some commentators, patent reform addresses the complaints of “large information technology . . . companies seeking to reduce their exposure to patent trolls.”⁸⁸ While mandatory appor-

⁸³ See *supra* note 1 and accompanying text. Because empirical research seems to favor both sides of this debate, this Comment assumes for the sake of argument that technology companies do indeed face obstacles meriting a discussion of reform.

⁸⁴ Allison & Lemley, *supra* note 66, at 140 (identifying specifically the “semiconductor and electronics industries”).

⁸⁵ See 35 U.S.C. § 284 (2006); see also Dennis Crouch, *Patent Reform 2009: Damages*, PATENTLY-O, Mar. 3 2009, <http://www.patentlyo.com/patent/2009/03/patent-reform-2009-damages.html> (“The current damages statute gives little guidance to a court.”).

⁸⁶ See *supra* note 20 and accompanying text.

⁸⁷ See, e.g., Long, *supra* note 60, at 46–47; see also Dennis Crouch, *Patent Reform Act of 2009*, PATENTLY-O, Mar. 3, 2009, <http://www.patentlyo.com/patent/2009/03/patent-reform-act-of-2009.html> (stating that “it is clear that this is not ‘balanced’ reform” and that the damages changes will likely “reduce patent awards”).

⁸⁸ Robert E. Thomas, *Vanquishing Copyright Pirates and Patent Trolls: The Divergent Evolution of Copyright and Patent Laws*, 43 AM. BUS. L.J. 689, 692 (2006). As a counterpart to these technology companies, the author cites the opposition to reform lodged by “[l]arge biotechnology, medical, and pharmaceutical companies” that do not encounter patent troll problems as frequently. *Id.* at 693; see also Markoff, *supra* note 67 (“It appears that the Senate leadership has sympathy for the large technology companies.”). Research indicates, however, that the large damages awards with which technology companies take issue may be less problematic than the industry suggests. See, e.g., Jay P. Kesau & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 278 (2006) (suggesting that a relatively small number of infringement verdicts result and with correspondingly few damage awards); see also David W. Opderbeck, *Patent Damages and the Shape of Patent Law*, 89 B.U. L. REV. 127, 137–50 (2009)

tionment may improve the technology industry's litigation position, pharmaceutical companies could often find themselves in a comparatively disadvantageous situation, whether they are plaintiffs or defendants in an infringement suit. Whereas a technological invention might contribute to the existing art because, for example, a computer component increases memory by a certain tangible percentage or processing speed by some calculable margin, a pharmaceutical or chemical invention may not offer any immediately measurable improvement in patient outcomes.

Given these differences, it would be much easier to conduct apportionment within infringement suits involving technology patents because the "specific contribution over the prior art"⁸⁹ could, in many instances, be empirically determinable. Relative ease of computation could be extraordinarily important in the damages phase of patent litigation, where a lay jury is deciding on an amount to award a patentee. In contrast, the pharmaceutical or chemical invention's benefit may be intangible, or alternatively, may not be fully evident at the moment of the invention but could culminate later in an important medical or clinical discovery.⁹⁰ Apportionment ignores the multitude of possibilities for pharmaceutical inventions by suggesting a "backwards-looking" stance,⁹¹ where a "forward looking view" would more readily accommodate these characteristics.⁹²

The difference in the timing and tangibility of benefits is not the only basis for contrast between pharmaceutical and technological inventions. If a juror can conceptually break an invention down into its component parts, then the invention lends itself well to apportionment of damages. In effect, a juror may find it easier to affix a value to parts that can actually be separated than to parts that form a cohesive whole. Technology-based inventions are, as a general matter, more amenable to theoretical division into discrete components than are pharmaceutical- or chemical-based inventions. For example, one commentator discussed a computer-aided method that requires input

(collecting and analyzing the results of previous statistical damages awards studies, conducting an original study, and concluding that no trend toward excessive damages emerges).

⁸⁹ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009).

⁹⁰ See Opderbeck, *supra* note 88, at 167 (indicating that the contribution of a discovery or invention over prior art may be modest at the time of discovery but could result in a drastic difference years later).

⁹¹ *Id.*

⁹² *Id.*

of genes to assess lifestyle-risk factors.⁹³ The degree of the method's utility depends on the number of gene fragments the program can access and on the particular function each gene performs.⁹⁴ Presumably, the biological significance of the encoded protein determines the program's ultimate usefulness and success.⁹⁵ Changing the facts for the moment to imagine that this invention was an actual, physical computer, rather than an algorithm, provides an interesting scenario for examining the differences between technological and biological or pharmaceutical inventions.

Potential infringement issues related to the hypothetical computer illustrate the nature of technological inventions as generally divisible and of scientific inventions as frequently cohesive or indivisible. If the patent at issue in an infringement suit involving a computer-covered monitor with increased pixel density, market studies and statistical analysis could help pinpoint the new feature attracting the customer to the product. In this way, the claimed invention's "specific contribution over the prior art" could be determined.⁹⁶ The situation would be very different if the patent described a gene fragment that codes for the first ten amino acids of a protein linked to a particular medical condition.⁹⁷ If the allegedly infringing product included a gene fragment coding for the second ten amino acids of the same protein, market studies or statistical analysis would not assist in isolating the protein's consumer-attractive feature. No rational way is available to determine whether the purportedly infringed patent improved over existing art and to what, if any, degree.

In their push for damages reform, large technology companies often cite a "significant cottage industry" of non-manufacturing and non-practicing entities purchasing patents and asserting the inherent

⁹³ See David Castle, *Intellectual Property and Nutrigenomics*, 16 HEALTH L. REV. 58, 60 (2008), available at http://findarticles.com/p/articles/mi_hb1366/is_3_16/ai_n29427283/pg_1?tag=artBody;coll.

⁹⁴ *Id.*

⁹⁵ *See id.*

⁹⁶ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)).

⁹⁷ Proteins carry out numerous vital processes in organisms, such as catalyzing biological reactions and carrying out molecular transport. See JEREMY M. BERG ET AL., *BIOCHEMISTRY* 41–42 (5th ed. 2002). Proteins are built from various compositions of amino acids, and in turn, genes determine the amino acid sequences. *Id.* at 43–53. It follows that, while amino acids are individually important, the entirety of the grouping determines the function of the protein.

rights.⁹⁸ The entities often work with patents whose inventors or assignees would not or could not practice the claimed invention.⁹⁹ They are dubbed “patent trolls” and exist solely to enforce otherwise insignificant patents and patents of questionable validity.¹⁰⁰ Thus, patent trolls artificially increase transaction and litigation costs for both users and non-users of the patent system.

The profile of patent trolls arose in recent years after protracted litigation involving Research in Motion, the maker of BlackBerry devices.¹⁰¹ A patent-holding company, NTP, sued Research in Motion for infringing patents that covered parts of the e-mail technology that Research in Motion purportedly used in BlackBerry devices.¹⁰² A jury found that Research in Motion had infringed the patents, and the U.S. Court of Appeals for the Federal Circuit partially affirmed the infringement verdict.¹⁰³ The parties continued negotiations and eventually settled,¹⁰⁴ as NTP possibly could have obtained an injunction against all distribution and use of BlackBerry products after the infringement verdict in its favor. Given the incremental nature of technology patents, situations such as the one in the BlackBerry case can arise whereby a non-practicing entity can threaten to shut down an entire system based on an allegedly infringed patent covering only a minor aspect of the overall product.¹⁰⁵ Even where the litigation ends in a settlement, rather than a damages award, the settlement amount can be massive.¹⁰⁶ Large technology companies with successful but intricate products observe these types of cases and demand patent reform in general and apportionment in particular.

⁹⁸ Harkins, *supra* note 20, at 410.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 410–11 (citing Steve Seidenberg, *Troll Control*, A.B.A. J., Sept. 2006, at 51, 53; Raymond P. Niro & Paul K. Vickrey, *The Patent Troll Myth*, 7 SEDONA CONF. J. 153, 153 (2006)) (internal quotations omitted).

¹⁰¹ NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).

¹⁰² *Id.* at 1290.

¹⁰³ *Id.* at 1291–92, 1325–26; see also Matthew J. May, Comment, *Patent Reform, Injunctions, and Equitable Principles: A Triangle of Changes for the Future*, 6 J. MARSHALL REV. INTELL. PROP. L. 671, 676 (2007).

¹⁰⁴ May, *supra* note 103, at 676.

¹⁰⁵ This idea of product holdup underlies the technology industry’s concerns. See, e.g., FED. TRADE COMM’N, *supra* note 20, Executive Summary, at 7 (stating that a “questionable patent . . . may be asserted to hold up production of [an] entire software program”).

¹⁰⁶ See Ian Austen, *BlackBerry Service to Continue*, N.Y. TIMES, Mar. 4, 2006, at C1. The case was settled for \$612.5 million. *Id.*

While many commentators have lamented the role of patent trolls, others have argued that they serve a useful function. These “patent dealers” may act “as a market intermediary in the patent market” and thereby provide “liquidity, market clearing, and increased efficiency to the patent markets.”¹⁰⁷ Regardless of which view is proper, noting that entities are technically completely within their rights under the patent laws to purchase patents and enforce them without ever practicing the invention is important.¹⁰⁸ Any reforms that purport to target non-practicing entities must be sensitive not only to their potentially beneficial purposes but also to the fact that they are within the letter of the law regarding patent protection.¹⁰⁹ Apportionment of damages may be one way to target the economic incentives behind the much-maligned patent troll issue, but given the negative consequences on other industries, apportionment cannot be the best or only solution.

The tension between pharmaceutical and technology companies resulting from their differing uses of patenting,¹¹⁰ the perceived threat of increasing damage awards and patent trolls,¹¹¹ and congressional recognition of these converging factors have culminated in several recent legislative proposals for patent reform, including the notion of damages apportionment.¹¹² The legislation will not likely

¹⁰⁷ James F. McDonough III, Comment, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 190, 201 (2006) (referencing DAVID L. SCOTT, WALL STREET WORDS: AN A TO Z GUIDE TO INVESTMENT TERMS FOR TODAY'S INVESTOR 87 (3d ed. 2003)) (internal quotation marks omitted). The author's thesis, at least in part, rests on the idea that small-entity or individual inventors do not have the capital to force litigation and thus cannot effectively enforce their patents. *Id.* at 210. Non-practicing entities, whether deemed trolls or dealers, have more financial liquidity with which to fund a lawsuit, which would theoretically prompt more licensing by potential infringers in lieu of an approach that involves infringing the patent and handling litigation if it arises. *See id.* at 210–11.

¹⁰⁸ *See Wesley Jessen Corp. v. Bausch & Lomb, Inc.*, 209 F. Supp. 2d 348, 403 n.12 (D. Del. 2002), *injunction modified*, 235 F. Supp. 2d 370 (D. Del. 2002), *aff'd*, 56 Fed. Appx. 503 (Fed. Cir. 2003) (stating that “a patentee need not commercialize his invention to successfully sue for patent infringement, and . . . a patent at its core is the right to exclude”).

¹⁰⁹ The issue of the utility vel non of non-practicing, patent-holding entities, or patent trolls, is a broad one. The dimensions of the problem are outlined merely to illustrate one of the industry-specific factors prompting patent reform and to indicate how alleviating this problem accords with the proposed reform alternatives embodied herein.

¹¹⁰ *See supra* notes 60–86 and accompanying text.

¹¹¹ *See Harkins, supra* note 20; *see also supra* notes 98–109 and accompanying text.

¹¹² *See Patent Reform Act of 2009*, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)); Pa-

bring this heated debate to an end. Regardless of whether damages apportionment becomes law (in this or a future round of patent reform legislation), pharmaceutical-minded and large technology-focused companies will continue to have vastly different uses and goals for the patent system. The patent system needs a measured legislative approach that keeps flexible jurisprudence intact while reasonably addressing the needs of the technology sector. This result will preserve the value of the system as a whole through that industry's continued use without significantly altering the necessary incentives for pharmaceutical companies.

III. OPERATIVE STATUTORY PROVISIONS, CURRENT DAMAGES JURISPRUDENCE, AND THE POTENTIAL EFFECTS OF REFORM UPON PATENT SYSTEM USERS

A. *Statutory Provisions Negating the Need for Legislatively Mandated Damages Apportionment*

Current patent law is sufficiently flexible to provide the result that large technology companies seek. The law already addresses, in a technology-neutral way and during the examination phase,¹¹³ the need for claimed inventions to be different from and perhaps even better than prior art. Thus, additional checks at the damages phase are superfluous.¹¹⁴ For example, the nonobviousness requirement for obtaining a patent mandates consideration of the claimed invention in light of the existing art in the relevant subject area.¹¹⁵ The invention must satisfy a standard of being different from what others have

tent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)); Patent Reform Act of 2007, H.R. 1908, 110th Cong. § 5 (2007) (as passed by House of Representatives, Sept. 7, 2007); Patent Reform Act of 2007, S. 1145, 110th Cong. § 5 (2007) (as referred to S. Comm. on the Judiciary, Apr. 18, 2007); Patent Reform Act of 2006, S. 3818, 109th Cong. § 5 (2006); Patent Reform Act of 2005, H.R. 2795, 109th Cong. § 6 (2005).

¹¹³ A patent is a government-granted privilege, and the United States Patent and Trademark Office scrutinizes each patent application, a process called examination, for compliance with the applicable statutory requirements. See KIEFF ET AL., *supra* note 43, at 72.

¹¹⁴ This additional check would be the “specific contribution over the prior art” language in certain versions of the 2009 Act or similar wording effectively mandating damages apportionment. See, e.g., H.R. 1260 § 5(a) (adding 35 U.S.C. § 284(c)(1)(C)).

¹¹⁵ 35 U.S.C. § 103 (2006); see also *Graham v. John Deere Co.*, 383 U.S. 1, 3 (1966); *infra* notes 155–64 and accompanying text.

done previously to receive the benefit of the patent monopoly.¹¹⁶ The relevance of provisions such as 35 U.S.C. § 103 lies not only in ensuring thorough consideration of a claimed invention against what already exists in the field, but in carrying out this analysis long before questions of infringement and damages arise. When the Patent and Trademark Office issues a patent, it has already given its stamp of approval that the claimed invention has made a contribution over the prior art in a given field because the invention would not be obvious to one of ordinary skill in that art.¹¹⁷

The utility requirement is another example of how current patent statutes already incorporate the result for which large technology companies advocate. If a patent is granted, the United States Patent and Trademark Office has determined that the invention satisfies a major patentability requirement in 35 U.S.C. § 101, which permits an applicant to obtain a patent only on a “new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”¹¹⁸ From the statutory language of “useful,”¹¹⁹ courts have derived a theme of “technological benefit.”¹²⁰ This benefit has to “exist[] in [a] currently available form.”¹²¹ While one reading of these decisions suggests that the courts simply meant to prevent patents on impossible inventions,¹²² another interpretation posits that the utility requirement is not met if the public does not receive an actual benefit from an invention.¹²³ If the pertinent field of art is

¹¹⁶ The particular formulation of the obviousness rule of law has changed in important ways over the life of the patent system. See *infra* notes 154–64 and accompanying text. But a lasting statement of the rule is found in *Graham*, 383 U.S. at 17.

¹¹⁷ 35 U.S.C. § 103 (2006).

¹¹⁸ § 101.

¹¹⁹ *Id.*

¹²⁰ JOYCE ET AL., *supra* note 35, at 7 (discussing differences between copyright law and patent law).

¹²¹ *Brenner v. Manson*, 383 U.S. 519, 535 (1966); see also *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005) (finding that a claimed invention has to have a “significant and presently available benefit to the public” and a “well-defined and particular benefit to the public”).

¹²² See, e.g., *In re Swartz*, 232 F.3d 862, 863–64 (Fed. Cir. 2000) (per curiam) (affirming that cold fusion does not satisfy the utility requirement).

¹²³ See, e.g., *Nelson v. Bowler*, 626 F.2d 853, 856 (C.C.P.A. 1980) (“‘Practical utility’ is a shorthand way of attributing ‘real-world’ value to claimed subject matter. In other words, one skilled in the art can use a claimed discovery in a manner which provides some immediate benefit to the public.”). Although the *Nelson* case decided an interference appeal, *id.* at 854–55, the court’s rationale can be logically applied in the context of this discussion. Indeed, this interpretation of the utility requirement dates back more than a century. See KIEFF ET AL., *supra* note 43, at 740 (stating that, for an invention to be patentable, it need not only “be bestowed upon the public by

crowded and a consumer could simply use another product or component that works in essentially the same way, an invention has not bestowed a benefit on that consumer. The consumer may have additional choices but no new benefit in a technological sense.¹²⁴

Under this reading of the statute and interpretive case law, the utility requirement functions as an examination-stage screening mechanism that allows inventions to be patented only if they have contributed a benefit to the existing subject matter. Even under the narrower reading of the utility requirement, in which an invention does not have to explicitly improve on the existing art to be patentable and an inventor is “rewarded for disclosing something new,”¹²⁵ if not necessarily better, the provision still permits consideration of benefits long before the damages phase. If the patent system does not render a dispositive judgment about benefits to the public, members of the latter group will decide on their own.¹²⁶ Regardless of whether the patent examining system or the general public rules on an invention’s *beneficial* utility, the damages provisions ideally play no important role in the decision.

The nonobviousness and utility requirements suggest that all inventions, whether pharmaceutical or technological, must add something to the art or at least provide something different from what already exists. If an invention fails to reach this threshold, it cannot attain the rights and privileges associated with a patent. Because statutory mechanisms that address the concerns of major technology companies already exist, Congress need not add an additional requirement of the same character in the damages section of Title 35. The nonobviousness and utility provisions already establish a statutory framework that allows, initially, the patent office to screen inven-

its inventor” but also must “confer on [the public] a benefit” (quoting 1 WILLIAM ROBINSON, TREATISE ON THE LAW OF PATENTS 462–63 (1890)).

¹²⁴ The consumer may benefit from a lower price by virtue of greater competition, but such issues are more properly the province of antitrust law. Additionally, the proposed damages provisions would consider the availability of “similar noninfringing substitutes in the relevant market” that have been “the subject of . . . nonexclusive licenses” in determining whether a particular established royalty amount is applicable to the determination of a damages award. See Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(B)); Patent Reform Act of 2009, H.R. 1260 § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284 (c) (1)(B)). This language is superfluous, however, because that process is already judicially ingrained. See *supra* note 50 and accompanying text.

¹²⁵ Opderbeck, *supra* note 88, at 166.

¹²⁶ *Id.* (citing *Lowell v. Lewis*, 15 F. Cas. 1018, 1019 (C.C.D. Mass. 1817) (No. 8568)).

tions for benefits and, subsequently, the courts to fashion appropriate remedies for the specific inventions in suit, regardless of technological pedigree.

B. Patent Jurisprudence: Effective in its Current State

When calculating infringement damages, courts presently have the freedom to consider the particular characteristics of the patented invention, whether the invention is classified as pharmaceutical, biological, chemical, technological, mechanical, or otherwise.¹²⁷ With the capacity to be flexible under the current damages statute,¹²⁸ courts can accommodate the needs of the industries and have often done so. The Federal Circuit has recognized that a damages calculation is hardly a one-size-fits-all endeavor, even within industries,¹²⁹ and that classes of inventions require special treatment in other ways. For example, the Federal Circuit can and does uniquely apply particular statutory requirements, such as the utility requirement and the best-mode requirement,¹³⁰ for obtaining patents in different ways for different types of inventions. It is especially compelling that statistical evidence may support the notion of “courts . . . deciding cases individually on the merits.”¹³¹

*Amgen Inc. v. Chugai Pharmaceutical Co.*¹³² highlights one situation in which a general patenting principle was adapted to meet the demands of the specific chemical invention in suit.¹³³ The case involved erythropoietin (EPO), a protein that is used to “stimulate[] the pro-

¹²⁷ The courts currently possess this broad discretion because the statute compelling an award of damages for patent infringement does not single out, expressly or by implication, any type of invention. See 35 U.S.C. § 284 (2006).

¹²⁸ *Id.*

¹²⁹ See, e.g., *Mars, Inc. v. Coin Acceptors, Inc.*, 527 F.3d 1359, 1374 (Fed. Cir. 2008) (“We have never held that any one profit accounting methodology is appropriate in all industries, for all companies, in all cases. The selection of the appropriate method of profit accounting in the circumstances is properly left to the broad discretion of the district court.”), *mandate recalled and remanded with instructions to District Court on allowance of interest*, 557 F.3d 1377 (Fed. Cir. 2009); see also *id.* at 1366 (“The correct measure of damages is a highly case-specific and fact-specific analysis.”).

¹³⁰ 35 U.S.C. §§ 101, 112 (2006); see *Northern Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1286 (Fed. Cir. 2000) (noting that, in a case involving a treatment for semiconductors, whether the best-mode requirement is satisfied depends on the threshold question of the “defin[ition] [of] the invention at hand”). See generally *In re Brana*, 51 F.3d 1560 (Fed. Cir. 1995) (imposing an industry-specific standard for utility requirement’s application to chemical inventions).

¹³¹ *Opderbeck*, *supra* note 88, at 137.

¹³² 927 F.2d 1200 (Fed. Cir. 1991).

¹³³ *Id.*

duction of red blood cells” and that is useful in treating blood disorders, including anemia.¹³⁴ Whereas the preparation of the protein historically relied on purification from human urine, a technique eliminating this need was developed in the form of EPO produced from recombinant DNA containing the gene encoding the EPO protein.¹³⁵ The recombinant DNA is used in conjunction with cell cultures “containing the EPO gene.”¹³⁶ Amgen obtained a patent on the isolated EPO-coding DNA sequences and accompanying host cells.¹³⁷ The defendant in *Amgen*, Genetics Institute, owned another patent with similar subject matter that claimed, *inter alia*, “homogenous EPO and compositions thereof.”¹³⁸ Amgen sued Genetics Institute and Chugai for alleged infringement of the Amgen patent based partly on the defendants’ use of recombinant DNA and vector-containing host cells.¹³⁹ Invalidity issues arose as to several of the patents in suit and required determination of which inventor first conceived the invention.¹⁴⁰ After stating the general test for conception—that it “requires both the idea of the invention’s structure and possession of an operative method of making it”¹⁴¹—the court recognized a more specific

¹³⁴ *Id.* at 1203.

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.* at 1203–04.

¹³⁸ *Amgen*, 927 F.2d at 1203.

¹³⁹ *Id.* at 1204. Chugai is named in the suit because it is the exclusive licensee of this Genetics Institute patent. *See Amgen Inc. v. Chugai Pharm. Co.*, 13 U.S.P.Q.2d (BNA) 1737, 1738 (D. Mass. 1989), *aff’d in part, rev’d in part, vacated in part, Amgen*, 927 F.2d 1200.

¹⁴⁰ *Amgen*, 927 F.2d at 1204–07. The conception date is important because under 35 U.S.C. § 102(g), a person can obtain a patent on an invention, assuming that all other patentability requirements are met, only if that invention was not already done before by someone else; therefore, inventors trying to obtain a patent or to prove in an infringement suit that their invention came first will try to push back the invention date as much as possible. *See* 35 U.S.C. § 102(g) (2006). That antedating is made possible by the following provision:

A person shall be entitled to a patent unless –

....

(g)(2) before such person’s invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Id.

¹⁴¹ *Amgen*, 927 F.2d at 1206 (citing *Oka v. Youssefyeh*, 849 F.2d 581, 583 (Fed. Cir. 1988)).

test for chemical compounds. According to the court, a gene qualifies as a chemical compound, and conception of that gene involves the inventor being able to define the compound “so as to distinguish it from other materials, and to describe how to obtain it.”¹⁴² If an inventor cannot “envision the detailed constitution of a gene so as to distinguish it from other materials, as well as a method for obtaining it,” conception only occurs upon reduction to practice.¹⁴³ The court’s test is flexible enough to permit recognition, in other cases and with regard to other inventions, of the difference between isolating a compound and creating or assembling the compound as in mechanical inventions.¹⁴⁴ Given the court’s careful and technology-specific analysis in *Amgen*,¹⁴⁵ courts can reasonably and, in fact, do capably address unique industry needs in the context of damages calculations.

Importantly, courts have already incorporated the principle underlying the proposed apportionment approach where appropriate. Legislatively mandated apportionment becomes unnecessary as a result. For example, in claim construction, a broader claim scope may be afforded to “pioneering inventions,”¹⁴⁶ apparently because of an absence of limiting prior art. By implication, an invention that adds little to a field will have a smaller range of equivalents and correspondingly smaller claim scope.¹⁴⁷ Thus, the court will consider any conceivable contribution to the art in determining the range of equivalents and whether infringement occurred at all. If a court does not find an independent contribution of a component in a technology combination patent, presuming that the court would fix a narrow

¹⁴² *Id.* (citing *Oka*, 849 F.2d at 583).

¹⁴³ *Id.*

¹⁴⁴ This difference perhaps results from the fact that with many biological or chemical inventions, the result and techniques may be completely new and not known among other practitioners in the field. Therefore, a simple description of the predicted end result is insufficient. *See Oka*, 849 F.2d at 583 (stating that, usually, description is enough when conventional methods in the field are used because “the question of whether the conceiver was in possession of a method of making it is simply not raised”).

¹⁴⁵ *See generally Amgen*, 927 F.2d 1200.

¹⁴⁶ *Augustine Med., Inc. v. Gaymar Indus.*, 181 F.3d 1291, 1301–02 (Fed. Cir. 1999) (citing *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1532 (Fed. Cir. 1987); *Thomas & Betts Corp. v. Litton Sys., Inc.*, 720 F.2d 1572, 1579 (Fed. Cir. 1983)).

¹⁴⁷ The doctrine of equivalents is explained and developed in a long line of precedents; it typically broadens the scope of claims beyond their literal language. *See, e.g., Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722 (2002); *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997). A “liberal range of equivalents” would further expand that scope. *Northwest Engineering Corp. v. Keystone Driller Co.*, 70 F.2d 13, 15 (7th Cir. 1934).

range of equivalents is reasonable and thus makes a finding of infringement less likely before the damages phase is even reached.¹⁴⁸ If there is no infringement, no damages award can be made, and the goal of controlling such awards is ultimately met without resort to a mandatory-apportionment analysis.

The court's subtle incorporation of the principles underlying apportionment in the context of claim construction is important because claim construction is a vital step in any infringement analysis.¹⁴⁹ This process has necessarily come to incorporate the nuances of the art embodied in vast numbers and types of inventions. Notably, because the technology sector is particularly concerned with ensuring that apportionment happens in cases involving its patents, courts implicitly examine an invention's contribution over prior art in determining claim scope.

In addition to effectively performing apportionment where appropriate during claim construction, courts already have the opportunity to use apportionment during a patent-infringement damages calculation.¹⁵⁰ The seminal *Georgia-Pacific*¹⁵¹ case, listing the hypothetical license factors useful to courts in fashioning damages awards, suggests that “[t]he utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out

¹⁴⁸ The U.S. Court of Appeals for the Seventh Circuit may have accomplished the same result with language more closely mirroring the legislative proposal. That court suggested that determining “the place of the invention in the art and the *extent of its contribution over the prior art*” is of fundamental significance in claim construction. *Northwest Engineering Corp.*, 70 F.2d at 15–16 (quoting *Johnson Bros. Engineering Corp. v. Masters*, 49 F.2d 187, 190 (7th Cir. 1931)) (emphasis added). The court suggested that “[i]f the patent covers an invention of much merit—marks a long step upward over the prior art—then neither the specifications nor the claims should be read literally.” *Id.* (quoting *Johnson Bros. Engineering Corp.*, 49 F.2d at 190). This precedent, however, does not bind the current appellate arbiter of patent suits, the Federal Circuit.

¹⁴⁹ 5A DONALD S. CHISUM, CHISUM ON PATENTS § 18.03 (perm. ed., rev. 2007) (“Determination of infringement of a patent requires construction of the meaning of the patent’s claim (or claims) and then application of the claim as construed to the accused product or process.”).

¹⁵⁰ See, e.g., *Lucent Tech., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1332–33 (Fed. Cir. 2009) (noting, in the context of a discussion of the court’s reasons for vacating a damages award, that “the infringing feature . . . is but a tiny feature of one part of a much larger software program” and concluding that “the infringing use of Outlook’s date-picker feature is a minor aspect of a much larger software program and . . . the portion of the profit that can be credited to the infringing use of the date-picker tool is exceedingly small”); see also *id.* at 1336–38 (discussing the entire market value rule).

¹⁵¹ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970), modified but method of calculating damages *aff’d*, 446 F.2d 295 (2d Cir. 1971).

similar results” are relevant.¹⁵² While attempts to codify this factor would aim to promote certainty and uniformity of damages awards, the option to rely upon it has been available to courts and litigants for over thirty years. If courts have used other factors instead, the particular invention in front of each court may simply warrant a different set of considerations; the court or jury need not have intended solely to grant a large damages award.¹⁵³

An equally significant element of patent jurisprudence meriting retention of the current approach involves the continual self-adjustment of the patent system.¹⁵⁴ A brief history of the nonobviousness requirement is instructive in this regard.¹⁵⁵ In 1941, the Supreme Court indicated that a “flash of creative genius,” an arguably high threshold, served as a patentability requirement.¹⁵⁶ The standard then evolved to require that an invention be somehow greater than the “sum of its parts.”¹⁵⁷ Later, in *Graham*,¹⁵⁸ the Supreme Court expanded on the legislative requirements of 35 U.S.C. § 103 and enunciated a three-part test for obviousness inquiries that compares the prior art in a given field to the claims of a patent.¹⁵⁹ The *Graham* test also provided for assessment of other, somewhat subsidiary, considerations.¹⁶⁰ When the patent system had arguably become too lax regarding the nonobviousness requirement,¹⁶¹ the Supreme Court’s decision in *KSR*¹⁶² conceivably circulated back in the direction of stricter patenting standards by raising the possibility that more patents would

¹⁵² *Georgia-Pacific Corp.*, 318 F. Supp. at 1120.

¹⁵³ See Crouch, *supra* note 83 (stating that, because certain courts already carry out functions like considering an invention’s contribution, “legislation advocates may refer to the damages reforms as simply a clarification that limits the actions of rogue courts”).

¹⁵⁴ See *supra* notes 3–5 and accompanying text.

¹⁵⁵ KIEFF ET AL., *supra* note 43, at 531–36, contains a useful overview of the history of the nonobviousness provision. This Comment highlights the major elements of this overview to indicate the section’s progression.

¹⁵⁶ *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941).

¹⁵⁷ *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950).

¹⁵⁸ *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

¹⁵⁹ *Id.* at 17 (explaining that nonobviousness analysis involves determining “the scope and content of the prior art . . . [the] differences between the prior art and the claims at issue . . . and the level of ordinary skill in the pertinent art”).

¹⁶⁰ *Id.* at 17–18. These considerations include “commercial success, long felt but unresolved needs, [and] failure of others.” *Id.* at 17.

¹⁶¹ See, e.g., FED. TRADE COMM’N, *supra* note 20, ch. 4, at 8, 11–12.

¹⁶² *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

be deemed invalid for obviousness,¹⁶³ though the lasting effects of the decision remain to be seen. In response, the lower courts have interpreted the Supreme Court's pronouncement to recommend precisely that course of action.¹⁶⁴ This jurisprudential intervention, whether or not intended as a statement about the proper boundaries of the patent system, functionally accomplishes precisely that result by ruling on the implementation of a particular aspect of that system.

The evolution of the nonobviousness requirement indicates that courts remain alert to the dynamics of the patent system.¹⁶⁵ If one area has become unwieldy and threatens the credibility of the larger system, the courts are fully capable of shifting the focus to accommodate industry users' perceived needs without drastic legislative intervention.¹⁶⁶ The argument applies with equal force to damages reform. Concerns about damages awards are best addressed by the courts because courts are the most institutionally competent bodies to produce results that accommodate the ever-changing needs of entities in the business of developing new products and technologies.

A counterargument to retaining the current approach might point to accusations of an "anticommons" effect.¹⁶⁷ According to this theory, "important patented upstream technologies will be underused" because multiple patents on that subject matter will act as a disincentive to other inventors.¹⁶⁸ These inventors will be averse to navigating what may be a complex web of license negotiations.¹⁶⁹ The phenomenon is said to be especially significant in the biotechnology sector,¹⁷⁰ which is alarming because of the perceived impact on innovation in important areas of science and medicine. A hypothetical argument might posit that if the system tolerates an anticommons ef-

¹⁶³ The Supreme Court, in holding that the TSM test is a "helpful insight" but is not the exclusive means of proving obviousness and thus negating validity, implicitly suggested that more avenues would be considered viable ways of invalidating patents on obviousness grounds. *Id.* at 418–19.

¹⁶⁴ See, e.g., *Ball Aerosol v. Ltd. Brands*, 555 F.3d 984, 991 (Fed. Cir. 2009) (applying *KSR*, 550 U.S. at 420–21, in finding claims in suit to be obvious).

¹⁶⁵ See *supra* notes 155–64 and accompanying text.

¹⁶⁶ Obviousness is not the only example of this judicial self-regulation. Recently, the Federal Circuit presumably imposed a measure of limitation on the scope of patentable subject matter in the context of method claims. See *In re Bilski*, 545 F.3d 943, 949, 951, 954, 963 (Fed. Cir. 2008) (en banc), *cert. granted*, 129 S. Ct. 2735 (2009).

¹⁶⁷ Yann Joly, *Open Source Approaches in Biotechnology: Utopia Revisited*, 59 ME. L. REV. 385, 394 (2007).

¹⁶⁸ *Id.* at 395.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

fect that suppresses innovation, its fundamental premises need greater oversight in the form of legislation. Damages would fall into the category of fundamental because they are a significant remedy under the patent laws.

But empirical research simply does not support the anticommons notion.¹⁷¹ The much-hyped phenomenon apparently has not affected biomedical research.¹⁷² While there may certainly be a potential for problems to arise, an open source or shared usage paradigm borrowed from the information-technology world is beginning to develop in the biotechnology world.¹⁷³ While the idea is still young and major pharmaceutical companies still rely on the patent system,¹⁷⁴ this parallel movement shows that the patent system, as currently constituted and perhaps in conjunction with modes of innovation, is perfectly capable of adapting itself to the demands of rapidly evolving technologies and industries. This adaptability applies with equal force to perceived problems with damages awards.

C. *Normative Reasons for Retaining the Current Approach over Mandatory Apportionment*

Support for the current damages system has spread outside the realm of the chemical and pharmaceutical industries. President George W. Bush's administration expressed its reservations about moving away from the current approach because such a shift may promote infringement and reduce the incentive function of patent law.¹⁷⁵ Importantly, the administration stated that "encouraging invention within particular business models or technology sectors must not come at the expense of innovation in others,"¹⁷⁶ which the proposed apportionment approach would likely do. Instead, "[i]nnovation . . . will be encouraged in all industries by giving [f]ederal judges the flexibility to apply appropriate economic principles to the facts of each case, *consistent with the business model or technology.*"¹⁷⁷ This language continues the theme of the Federal Circuit's recognition that each type of invention poses unique challenges that

¹⁷¹ *Id.* at 395–97.

¹⁷² *Id.* at 395.

¹⁷³ Joly, *supra* note 167, at 391–94.

¹⁷⁴ See *supra* notes 66–71 and accompanying text.

¹⁷⁵ See Wienecke, *supra* note 34, at 2.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.* (emphasis added).

merit close consideration and adaptation of general patent-law principles to the facts in each case.¹⁷⁸

Given certain industries' opposing views of the utility of the patent system and proper calculation of damages,¹⁷⁹ analyzing the potential effects of mandatory apportionment on each side is helpful. In a variation on a common formulation appearing in proposed statutes, apportionment would focus on a "specific contribution over the prior art."¹⁸⁰ This language connotes a per se requirement for actual, tangible improvement or benefit to the public. Satisfying this element for technology inventions would not pose insurmountable difficulties because demonstrating the utility of these products is often straightforward.¹⁸¹ For mechanical inventions, the inventor can easily provide diagrams or pictures that highlight the functionality and "physicality" of the device.¹⁸² But the utility requirement is more difficult to meet for chemical, pharmaceutical, and biological inventions, which may "possess an evolving utility" in many instances.¹⁸³ Even if this dichotomy is unobjectionable and can be accommodated during the examining phase, effectively permitting a utility requirement at the damages phase would unfairly subject pharmaceutical patents to an additional post-grant hurdle that many technological inventions do not encounter.¹⁸⁴ Adding a supplementary utility requirement will tend to make enforcement of a patent more difficult, will deter companies from seeking patent protection if the patent's enforceability is dubious, and will therefore deprive the public

¹⁷⁸ See *supra* Part III.B.

¹⁷⁹ See *supra* Part II.B.

¹⁸⁰ Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009) (adding 35 U.S.C. § 284(c)(1)(C)).

¹⁸¹ See 35 U.S.C. § 101 (2006); KIEFF ET AL., *supra* note 43, at 740.

¹⁸² KIEFF ET AL., *supra* note 43, at 740.

¹⁸³ *Id.* The difficulty that science-based inventions face with regard to meeting the utility requirement is evident in a Supreme Court case that set a high standard for utility of processes and appeared to minimize the role of implements to further scientific research. *Brenner v. Manson*, 383 U.S. 519, 531–36 (1966) ("But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion."). Interestingly, some have disputed this position, including the venerable Judge Rich. See *In re Kirk*, 376 F.2d 936, 949 (C.C.P.A. 1967) (Rich, J., dissenting) ("I believe . . . that usefulness to chemists doing research on steroids, as intermediates to make other compounds . . . is sufficient."); see also *Brenner*, 383 U.S. at 536–40 (Harlan, J., concurring in part and dissenting in part).

¹⁸⁴ See Opderbeck, *supra* note 88, at 166–70.

of drugs or drug precursors that could prove infinitely valuable at some future date.

A number of commentators and government entities suggest that the Patent and Trademark Office issues unworthy patents and that the patent system is seriously flawed.¹⁸⁵ The workings of the office and quality of issued patents may indeed be problematic, but various provisions of the 2009 Act address some of these perceived problems before the issue of damages even arises. Apportionment, which would take place at the damages stage long after a patent is granted and liability is determined, would not be effective in addressing the quality of an issued patent. Other solutions would confront patent quality and examination problems at an earlier stage and thus more effectively. For example, the 2009 Act would convert the U.S. patent system from a first-to-invent to a first-to-file procedure and thereby eliminates the need for interference proceedings.¹⁸⁶ Interference proceedings can delay or prevent the issuance of a patent and therefore can serve as an impediment to any commercial success that a putative patentee may anticipate. The 2009 Act also discusses detailed prior-art submission and post-grant opposition procedures,

¹⁸⁵ See, e.g., Harkins, *supra* note 20, at 432–33 (stating that “patent quality is a genuine topic for debate” and that only allowing issuance of high-quality patents has “proven to be an elusive goal and perhaps an unattainable target to date”); see also GOV’T ACCOUNTABILITY OFFICE, INTELLECTUAL PROPERTY: IMPROVEMENTS NEEDED TO BETTER MANAGE PATENT OFFICE AUTOMATION AND ADDRESS WORKFORCE CHALLENGES I (2008) (Testimony Before the Subcomm. on Court, the Internet, and Intellectual Property, H. Comm. on the Judiciary, Statement of Anu K. Mittal, Director, Science and Technology Issues, and Linda D. Koontz, Director, Information Management Issues), available at <http://purl.access.gpo.gov/GPO/LPS64135> (“Rapid growth in both the volume and complexity of patent applications to [the] USPTO has lengthened the time needed to process patents and has raised concerns among intellectual property organizations, patent holders, and others about the quality of the patents that are issued.”).

¹⁸⁶ Patent Reform Act of 2009, S. 610, 111th Cong. § 2 (2009) (as referred to S. Comm. on the Judiciary, Mar. 17, 2009); Patent Reform Act of 2009, S. 515, 111th Cong. § 2 (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 3 (2009) (as referred to H. Comm. on the Judiciary, Mar. 3, 2009). Priority in the U.S. patent system is unlike other countries in that it allows an inventor who filed second to still obtain a patent on his invention if he can prove that his invention date is earlier than the other party’s invention date. See 3A CHISUM, *supra* note 149, § 10.01. In other words, the United States will grant a patent to the first inventor, as long as his invention meets the statutory predicates. In other countries, the filing date is dispositive; the first party to file is the only party who can patent that invention. *Id.*

which are aimed at improving the quality of issued patents and allowing cancellation of invalid claims.¹⁸⁷

IV. ALTERNATIVES TO APPORTIONMENT

A. *The Best Bet: Elimination of the Reasonable-Royalty Floor*

The current version of 35 U.S.C. § 284 sets “reasonable royalties” as the mandatory minimum damages award for patent infringement.¹⁸⁸ Damages for patent infringement are meant to compensate the patentee for his loss and are not computed with reference to the gain or loss of the infringer.¹⁸⁹ Assuming that, in some instances, a patent holder has absolutely no financial loss resulting from the infringement, such as when the patented and putatively infringing products are sold in completely different markets or the patented product is not sold or licensed at all, why Congress would insist on setting a minimum is peculiar. But instead of guaranteeing only nominal damages plus a mandatory injunction or even nominal damages alone, Congress left the minimum at a reasonable-royalty level. Courts have supplied a rich body of jurisprudence regarding the definition of the statutory language. In many cases, courts have adopted a test that “envisions and ascertains the results of a hypothetical negotiation between the patentee and the infringer at a time before the infringing activity began.”¹⁹⁰

One way to change this established law on infringement damages is to eliminate the reasonable-royalty floor. This modification could introduce into the patent system a number of benefits. Without a reasonable royalty standard, a smaller or independent inventor on a strict litigation budget could seek nominal damages and an injunction rather than going through the expense and time of providing evidence for a hypothetical license negotiation in a past or hypothetical market.¹⁹¹ The inventor would not have to hire a high-priced

¹⁸⁷ S. 515 § 5; H.R. 1260 § 6. Senator Kyl’s version also includes sections on “Post-Grant Review Proceedings” and “Submissions by Third Parties and Other Quality Enhancements.” S. 610 §§ 5, 7.

¹⁸⁸ 35 U.S.C. § 284 (2006).

¹⁸⁹ *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964) (quoting *Coupe v. Royer*, 155 U.S. 565, 582 (1895)).

¹⁹⁰ *Integra Lifesciences I, Ltd. v. Merck KGaA*, 331 F.3d 860, 869–70 (Fed. Cir. 2003) (citing *Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1311 (Fed. Cir. 2002)), *vacated*, 545 U.S. 193 (2005).

¹⁹¹ See *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified on other grounds*, 446 F.2d 295 (2d Cir. 1971).

expert in economics to address the *Georgia-Pacific* factors,¹⁹² which would be an attractive idea if lower expenses would reduce the barrier to enforcing the patent via litigation. Although few, if any, inventors or patent holders would sue for nominal damages, an injunction may be quite valuable in a practical sense. The threat of injunction can be a powerful tool for an inventor to wield in negotiations with potential infringers.¹⁹³ Injunctive relief may not be as certain as it was even several years ago, but it is still available if a patentee establishes the traditional equitable factors warranting this remedy.¹⁹⁴

By eliminating the reasonable-royalty minimum, Congress would not concurrently eliminate a patentee's prospect of damages. Reasonable royalties could represent one option for damages rather than the mandatory minimum award. Also, if the patentee, perhaps an independent inventor or small company, could show actual damages and chooses not to seek reasonable royalties, the lost-profits measure of damages would still be available.¹⁹⁵ If litigation costs are less problematic, however, reasonable royalties as a measure of damages would still be available. The system might simply experience a downward adjustment in the number of suits in which reasonable royalties are sought.

Additionally, allowing a damages award to take the form of nominal damages and permitting such results to become commonplace could have a subsidiary effect of reducing the demand for "patent trolls"¹⁹⁶ that have leverage simply because the patentee is a small-time entity without a budget to fund infringement litigation. Even if patent trolls perform at least some beneficial functions, such as market clearing and highlighting otherwise obscure prior art,¹⁹⁷ that good work would be preserved because the market in which they work would continue to exist. Less pressure would be placed on independent inventors to relinquish their rights to trolls because the inventors could afford to enforce the patents on their own. Demand for

¹⁹² *Id.* at 1120.

¹⁹³ See, e.g., *supra* notes 103–06 and accompanying text. Research in Motion settled for an enormous amount of money because the threat of BlackBerry users losing their service was a shudder-inducing prospect not only for the company but also for its many customers. See Ken Belson, *Not the End of the World After All*, N.Y. TIMES, Feb. 26, 2006, § 4, at 2; *supra* note 106.

¹⁹⁴ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–92 (2006).

¹⁹⁵ See *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978).

¹⁹⁶ Harkins, *supra* note 20, at 410; see also *supra* notes 98–106 and accompanying text.

¹⁹⁷ See McDonough III, *supra* note 107.

trolls would decrease and relieve, at least as to this issue, serious and likely justified concerns of large technology companies currently seeking reform.¹⁹⁸ Presumably, the desire of non-practicing entities to purchase patents would decline without a guaranteed reasonable-royalty award upon a finding of infringement.¹⁹⁹ An allegedly infringing company could rely on the prospect that nominal damages would be awarded and would be less likely to pay a high settlement. This reticence would reduce the incentive for a non-practicing patent holder to sue when it has no cognizable damages or an otherwise weak case. The fact that an injunction may be available does not change this scenario because patent trolls probably could not meet the heightened requirements.²⁰⁰ A practicing entity, such as a pharmaceutical or large technology company, presumably *could* meet the test, making an injunction a worthwhile companion to the prospect of nominal damages.

Removing the reasonable-royalty floor could also work to the benefit of the pharmaceutical and chemical industries in that adjusting the value of infringement awards downward would correspondingly reduce the value of royalty stacking.²⁰¹ While such issues arise often in the technology industries, given the “incremental”²⁰² nature of the typical invention, similar problems may arise in the sciences.²⁰³ If each individual royalty amount or a portion of the aggregated royalties is reduced, the overall cost of producing a composite invention and defending it in patent lawsuits decreases. This result would reduce some of the concern inherent in royalty stacking.

A counterargument might posit that an inventor would lack any incentive to litigate if he is only guaranteed nominal damages. The

¹⁹⁸ See Markoff, *supra* note 67 (referencing “Intel, Microsoft, I.B.M. and Apple” as companies that want to limit the strength of trolls and “small patent holders”); see also *Patent Reform*, *supra* note 1, at 4–8 (statement of Steven R. Appleton).

¹⁹⁹ See Harkins, *supra* note 20, at 439–40 (suggesting that patent trolls derive motivation and work, *inter alia*, by either prompting large settlements from companies averse to litigation costs or by “leveraging the acquired patents into a license mill . . . for royalty rates far in excess of the claimed invention of the threatened patent”).

²⁰⁰ These requirements are described in *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–92 (2006).

²⁰¹ For a brief competition-centered explanation of the notion of royalty stacking, see FED. TRADE COMM’N, *supra* note 20, ch. 2, at 32–33.

²⁰² See Samuelson et al., *supra* note 31, at 2330 (discussing software).

²⁰³ See, e.g., *Integra Lifesciences I, Ltd. v. Merck KGaA*, 331 F.3d 860, 871 (Fed. Cir. 2003) (“[T]he number of patent licenses needed to develop a drug may also affect the value placed on any single technology used in the development process. The cumulative effect of such stacking royalties can be substantial, particularly when reach-through royalties come into play.”)

fact that the inventor would still have an option to seek lost profits or a reasonable royalty could force an infringing company to contemplate a license because any threat of litigation would prompt the company to consider the value of the patented invention in its own product. If the patented component is valuable to that company, licensing could lead to a major reward for the inventor, particularly if a license agreement was reached before trial. The downside to nominal damages is that the patentee's licensing power might instead decrease because a company may be more likely to infringe and risk a suit. The solution to this dilemma is a strong right to injunctive relief, but the case law is still adjusting on this issue.²⁰⁴

Particularly noteworthy with regard to this counterargument is that, even under the above analysis, which appears initially to favor patentees over large technology companies, the company can nonetheless engage in a more considered, careful analysis of whether to seek a license. If nominal damages would be the maximum exposure (aside from legal fees), a company making a highly intricate technology-based product would likely feel less pressure to settle in situations such as that recently facing Research in Motion in the BlackBerry dispute.²⁰⁵

B. A Statutory Damages Regime

A statutory damages regime modeled on the copyright damages statute could accompany elimination of the reasonable-royalty floor in patent law. Patentees would admittedly have little incentive to litigate if nominal damages were the new statutory minimum and injunctive relief, although potentially helpful, was not certain. Carefully measured legislative relief could step in at this juncture. Congress could decide to set a low statutory minimum within a schedule rather than retain the ambiguous "reasonable royalty."²⁰⁶

Plaintiffs in copyright-infringement suits can elect to recover "actual damages and any additional profits of the infringer" or, alternatively, "statutory damages."²⁰⁷ Statutory damages under this provision range from \$750 to \$30,000 per infringed work with the final award fixed at an amount the court "considers just."²⁰⁸ Where a plaintiff

²⁰⁴ See *eBay Inc.*, 547 U.S. at 393–94.

²⁰⁵ See Austen, *supra* note 106; see also *supra* text accompanying notes 101–104.

²⁰⁶ 35 U.S.C. § 284 (2006). Statutory minimums exist in copyright law. See 17 U.S.C. § 504 (2006).

²⁰⁷ 17 U.S.C. § 504(a)(1)–(2), (b), (c).

²⁰⁸ *Id.* § 504(c)(1).

elects the statutory damages option, the copyright laws provide for adjustment of these statutory minimums upward for willfulness and downward for a lack of intent for or the absence of a reasonable belief of infringement.²⁰⁹ A court may also consider factors in deciding an amount of statutory damages that include the “expenses saved and profits reaped by the defendants” because of their infringement and the plaintiff’s resultant lost revenues.²¹⁰ Courts may, in the exercise of wide discretion, consider the “deterrent effect of the award on a defendant and on third parties.”²¹¹ The copyright law also contains a provision that courts must remit statutory damages if an infringer reasonably and actually believed his infringement was fair use and qualifies as a nonprofit library or public broadcasting employee in the context of the infringing use.²¹²

Patent law could successfully adopt a similar statutory-damages framework that would address concerns about uncertain damages awards without diminishing the incentives for pharmaceutical research. Congress could set minimum and maximum amounts and the courts could supply the necessary interpretation. The “expenses saved and profits reaped” factor could come directly from copyright jurisprudence²¹³ because research in patent-eligible fields is likely to be hastened and the cost reduced if an infringer simply copies the steps of a patented and well-explicated invention description. The infringer’s product would therefore reach the market earlier and more cheaply than would have been practicable in the absence of the infringement. The notion of adjusting amounts upward and downward within the framework according to culpability or lack thereof is already familiar to patent law²¹⁴ and could become helpful in a new context.

If Congress imported into patent law the copyright infringement damages framework, the need for the complicated reasonable-royalty calculation would be greatly reduced, as would the risk to the paten-

²⁰⁹ *Id.* § 504(c)(2).

²¹⁰ *N.A.S. Import, Corp. v. Chenson Enters., Inc.*, 968 F.2d 250, 252 (2d Cir. 1992) (quoting 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 14.04[B], at 14-41 (3d ed. 1991)) (internal quotation marks omitted).

²¹¹ *Playboy Enters. v. Webworld Inc.*, 991 F. Supp. 543, 560 (N.D. Tex. 1997) (citations omitted).

²¹² 17 U.S.C. § 504(c)(2) (2006). This is the Teacher-Librarian-Broadcaster Exception. 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHTS § 14.04[B][2][b] (4th ed. 2008).

²¹³ *N.A.S. Import, Corp.*, 968 F.2d at 252 (internal quotations omitted).

²¹⁴ 35 U.S.C. § 284 (2006); see also *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007).

tee inherent in the process. If a patentee alleging infringement thought that he might have difficulty proving actual damages, he would then have the option of proving a reasonable royalty amount. If the patentee had not previously licensed the patent in suit, making the computation of an “established royalty” difficult or impossible,²¹⁵ or if the alleged infringer had not executed licenses on similar patents, making establishment of a “rate[] paid by the licensee for the use of other patents comparable to the patent in suit” highly speculative,²¹⁶ the patentee may want to select the statutory damages option instead (if made available). A guaranteed return—one more specific than the current statutory floor—upon an infringement finding would eliminate the possibility that a reasonable royalty would be set at a very low amount and would also work to make sure that the patentee is compensated for unquantifiable, intangible losses. On the opposite side, statutory minimums would afford larger entities, particularly technology companies, notice of the amount for which they may be held liable for infringing a component patent in a sophisticated, multi-part product. This notice function lends more certainty to the area of damages awards than exists under the current reasonable-royalty regime.

A cautionary point arises by comparison to the copyright statutes. Much of copyright law has evolved in response to new technologies,²¹⁷ and one result is that the law contains various “special schemes” of statutory damages.²¹⁸ The factors to consider in patent law, if Congress opts for a statutory damages regime, should not go so far. In fact, several recently proposed factors would accomplish a shift too far in the direction of specificity and should be generally avoided.²¹⁹

²¹⁵ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

²¹⁶ *Id.*

²¹⁷ The legislative history to 17 U.S.C. § 102 suggests that Congress had to balance concerns about making sure to limit the scope of copyright without eliminating the possibility of protection for new types of expression. CRAIG JOYCE ET AL., *COPYRIGHT LAW: SEVENTH EDITION: 2008 CUMULATIVE SUPPLEMENT* 463–64 (2008) (quoting House Report on the Copyright Act of 1976, H.R. REP. NO. 94-1476 (1976), *reprinted in* 1976 U.S. Code Cong. & Ad. News 5659).

²¹⁸ 4 NIMMER & NIMMER, *supra* note 212, § 14.04[B][1][a].

²¹⁹ See Patent Reform Act of 2009, S. 515, 111th Cong. § 4(a) (2009) (as referred to S. Comm. on the Judiciary, Mar. 3, 2009); Patent Reform Act of 2009, H.R. 1260, 111th Cong. § 5(a) (2009) (as referred to H.R. Comm. on the Judiciary, Mar. 3, 2009).

V. CONCLUSION

Damages apportionment favors inventions deriving from the technology sector at the expense of pharmaceutical inventions. The nature of inventions to be patented in these industries differs to such an extent that, if an additional, post-grant requirement of damages apportionment is mandated, science- and pharmaceutical-based inventions would be subject to greater hurdles in proving entitlement to damages²²⁰ while the concerns of the technology sector regarding high damages awards and hold-up would unilaterally be addressed.²²¹

To avoid thrusting this uneven effect upon the various industry-level users of the patent system, Congress should not mandate damages apportionment. Instead, Congress should allow the courts to continue adapting the current patent provisions to inventions in each particular case, which the courts have done successfully for decades.²²² The evolving jurisprudence on other provisions of Title 35 patenting requirements, such as utility and nonobviousness,²²³ illustrates that courts are fully capable of shaping the law to conform to the demands of industry users without the need for potentially over-restrictive legislative interference.

In the event that statutory reform is unavoidable, legislative intervention should be of a lesser degree than apportionment.²²⁴ Specifically, eliminating the current reasonable royalty minimum would deflate any artificially inflated damages awards by indirectly attacking a perceived patent-troll problem while declining to interfere with legitimate patent rights. Substituting a floor of either nominal or statutorily enumerated damages, while still permitting recovery of reasonable royalties or lost profits if a patentee so elects, could address the concerns of the technology industry without creating additional post-grant hurdles for the pharmaceutical and chemical industries. An additional beneficial and patent-strengthening consequence of eliminating the current reasonable-royalty floor, one which also addresses patent trolls, lies in the encouragement of small inventors to retain their patents and enforce them if litigation costs are reduced.

²²⁰ S. 515 § 4(a) (adding 35 U.S.C. § 284(c)(1)(C)); H.R. 1260 § 5(a) (adding 35 U.S.C. § 284(c)(1)(C)); *see supra* Part II.B.

²²¹ *See supra* Part II.B.

²²² Indeed, the new gatekeeper provision may do just that. *See supra* note 9.

²²³ 35 U.S.C. §§ 101, 103 (2006).

²²⁴ *See supra* Part IV.

At the most basic level, the U.S. patent system is meant “[t]o promote the Progress of Science and useful Arts.”²²⁵ Although the contours of patent protection have expanded and contracted over time, this bedrock remains unchanged. An approach to patent reform that stifles innovation in science-based industries while manipulating the system in favor of technology companies would fundamentally hinder that purpose. Responding to the complaints of technology companies with apportionment is particularly dangerous because large technology companies often forgo or minimize the role of patent protection and instead exploit their inventions through cross-licensing and reliance on market power.²²⁶ Thus, while the main beneficiaries of damages apportionment would see only marginal improvement, other industries may experience substantial weakening in the very foundations of their respective industries. The patent laws should not cease to perform their incentive function simply because the legal framework no longer fits an industry’s business model, such as, in this case, that of the technology companies. While the patent laws need not apply in an unduly rigid fashion that ignores the needs of patentees and potential patentees, they must perform in an evenhanded and effective way. Apportionment does not seek to achieve that end in every case and should be avoided in resolving debates over proper application of the patent laws.

²²⁵ U.S. CONST. art. I, § 8, cl. 8.

²²⁶ See *supra* notes 81–84 and accompanying text.