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Tesla, Marconi, and the Great Radio Controversy: Awarding Patent Damages without Chilling a Defendant's Incentive to Innovate

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Tesla, Marconi, And The Great Radio Controversy: Awarding Patent Damages Without Chilling A Defendant's Incentive To Innovate

*Christopher A. Harkins**

ABSTRACT

The true life story of Nikola Tesla reads like a fiction novel worthy of Hollywood in a tale of the great radio controversy. Who did invent radio? Marconi is often credited with the invention, while a discouraged Tesla mostly watched from the sidelines – his contributions and further innovations to radio being silenced during the height of radio's most rapid growth. While Tesla's bizarre personal life may read like a novel by Jules Verne and F. Scott Fitzgerald, this much can be learned from the facts and folklore of the radio controversy: simultaneous discovery and independent development ought to mitigate patent damages in order to fuel innovation. Indeed, unmitigated patent damages might slow or obstruct the progress of science by creating a zone of uncertainty that would-be defendants can enter only at the risk of either losing all research dollars already invested in product development or facing costly patent infringement lawsuits if they bring the independently developed product to market. As a result, innovation may be discouraged only a little less than unequivocal foreclosure in a field of invention. But the simultaneous discovery of an invention by two or more talented inventors working independently is certainly not unknown. And it is as important to the public that competition in developing valuable inventions should not be suppressed as it is when the patentee is protected by a monopoly. Balancing these ostensibly opposing policies can prove an elusive goal, but this is not necessarily so. If the defense proposed in this article is adopted, the patentee will be able to retain its unqualified patent monopoly as to all latecomers to the invention, but a defendant who simultaneously discovered and independently developed the infringing product will be allowed to mitigate damages. This adjustment in the calculation of damages will spark innovation.

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I. INTRODUCTION

Advocates of the patent system generally see it, in one shape or another, as a way to encourage an inventor to innovate.¹ They might argue that no less than the United States Constitution supports this lofty goal by granting the inventor a monopoly over an invention for a number of years.² And should others trespass upon the metes and bounds of the plaintiff's monopolistic intellectual property,³ surely the trespass should lead to an injunction⁴ and damages⁵ against the infringer, and possibly attorneys' fees.⁶

While calls for damages mount,⁷ presumably to promote innovation in the name of the plaintiff,⁸ calls have not been made to recognize that runaway

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1. Jerry A. Hausman, Gregory K. Leonard & J. Gregory Sidak, *Patent Damages and Real Options: How Judicial Characterization of Noninfringing Alternatives Reduces Incentives to Innovate*, 22 BERKELEY TECH. L.J. 825, 852 (2007) ("The patent system allows firms to exclude competitors, thereby creating incentives for innovation.").

2. U.S. CONST. art. I, § 8, cl. 8 ("To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries . . .").

3. 35 U.S.C. § 261 (2000) ("[P]atents shall have the attributes of . . . property.").

4. 35 U.S.C. § 283 (2000) ("The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable.").

5. 35 U.S.C. § 284 (2000) ("Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement . . .").

6. 35 U.S.C. § 285 (2000) ("The court in exceptional cases may award reasonable attorney fees to the prevailing party.").

7. Hausman, Leonard & Sidak, *supra* note 1, at 827 ("Patent damage awards have become an increasingly important feature of business strategy in the United States over the past 20 years. Jury awards exceeding \$100 million were relatively rare before 1990 but now are common."); *see also* Eolas Techs. Inc. v. Microsoft Corp., 399 F.3d 1325, 1332 (Fed. Cir. 2005) (jury verdict for \$520 million); Polaroid Corp. v. Eastman Kodak Co., No. 76-1634-MA, 1991 WL 4087, at *5 (D. Mass. Jan. 11, 1991) (damages in the amount of \$873 million); Press Release, Research in Motion, Research in Motion and NTP Sign Definitive Settlement Agreement to End Litigation (Mar. 3, 2006), *available at* <http://press.rim.com/release.jsp?id=981> (RIM paid NTP \$612.5 million.) (last visited Sept. 14, 2008).

juries and their verdicts can in fact stymie innovation of the defendant. Yet, controlling the costs of infringement by recognizing the reality of a defendant's simultaneous discovery and independent development ought to be considered as a means of encouraging – not some, but all – innovation by both the plaintiff as well as the defendant, while allowing companies to compete effectively in the marketplace.

Notably, leading commentators have only addressed the purpose of patent law from the patentee's perspective.⁹ Failure to consider innovation from the defendant's perspective, however, serves a negative function and leads inexorably to a patent system that discourages investment in research and development.

For instance, consider a pharmaceutical company faced with a decision to invest in a new technology, such as an innovative drug that would foster the high standard of living in America and help developing countries in need of better medicine. Investments of time and money have been estimated to reach twelve years¹⁰ and \$800 million,¹¹ respectively. This means that for more than a decade a second company may discover, intentionally or unwittingly, a similar drug. Since United States patent applications are generally preserved in confidence,¹² the pharmaceutical company might not even know the second company filed a patent application until served with a cease-and-desist letter or a complaint alleging patent infringement based on a broadly worded “blocking patent”¹³ seeking to prevent the pharmaceutical company from offering its innovative drug.

8. For simplicity, the term “plaintiff” refers to patent owners and patentees suing for patent infringement or defending against a declaratory judgment action based on their cease and desist letter. The term “defendant” refers to a party accused of patent infringement and who is either being sued for patent infringement or is bringing a declaratory judgment action for non-infringement.

9. ROBERT L. HARMON, *PATENTS AND THE FEDERAL CIRCUIT* 12 (8th ed. 2007) (“Thus, the statutory standard of patentability rests on a constitutional grant of power. . . . By so doing, it encourages innovation”); 7 DONALD S. CHISUM, *CHISUM ON PATENTS* § 20.01, at 20-7 (2007) (“The goal of the law of monetary relief for patent infringement is to provide full compensation to the owner of a patent.”).

10. Andrew J. Paprocki, Note, *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.: Can the Patent-Term Extension of the Hatch-Waxman Act Be Used as Leverage in Drug Patent Infringement Settlements?*, 46 *JURIMETRICS J.* 471, 474 (2006).

11. Daniel F. Coughlin & Rochelle A. Dede, *Hatch-Waxman Game-Playing from a Generic Manufacturer Perspective: From Ticlid® to Pravachol®, Apotex Has Difficulty Telling Who's on First*, 25 *BIOTECHNOLOGY L. REP.* 525, 526 n.9 (2006).

12. 35 U.S.C. § 122(a) (2000) (“Except as provided in subsection (b), applications for patents shall be kept in confidence by the Patent and Trademark Office and no information concerning the same given without authority of the applicant or owner”).

13. *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 810 (Fed. Cir. 2002).

Has the pharmaceutical company been encouraged to take investment-based risks?

It is only fair that a plaintiff be rewarded for inventions. It is equally fair, but ignored, that the patent system should encourage all inventors (not just a plaintiff, but also a defendant) to risk investment in research and development (R&D) in pursuit of inventions that benefit society. The policy considerations in favor of promoting the sciences deserve the same respect when achieved by the defendant as when achieved by the plaintiff.

As one contemplates the patent system in general, and the impact that patent damages have on that system in particular, one should not lose sight of the price paid for innovation. Patent damages encourage a plaintiff to invent, but not without public costs.¹⁴ When a plaintiff's right to exclude is blindly followed without regard to a defendant's legitimate, independent efforts and successes in developing the same or equivalent invention, society's goal of encouraging research in areas such as public health is jeopardized. Indeed, many achievements have not always resulted in immediate success, but oftentimes have resulted in expensive undertakings and long-term investments.

Moreover, while companies are slowed by plunking down hefty sums in R&D necessary to develop innovative products, a new breed of plaintiffs is not being slowed by any R&D budget, because they have none. Instead of commercializing products, these plaintiffs buy up patents (oftentimes older paper patents), wait for the technology and industry to grow up around the patents, and then use the patents as a holdup device for extorting money from manufacturers of purportedly related goods.¹⁵ These plaintiffs ushered in the era of "patent trolls."¹⁶

To many, the damages claimed by patent trolls too often bear little relation to the value of the asserted patents.¹⁷ A patent troll generally cannot rely on a lost profits theory of damages,¹⁸ and must rely on a damage theory of an

14. *Cover v. Hydramatic Packing, Co.*, 83 F.3d 1390, 1392 (Fed. Cir. 1996) ("In other words, there are public costs associated with the right to exclude, and our patent system seeks to maintain an efficient balance between incentives to create and commercialize and public costs engendered by these incentives.").

15. See Raymond P. Niro & Paul K. Vickrey, *The Patent Troll Myth*, 7 SEDONA CONF. J. 153, 153 (2006).

16. The term "patent troll" was "first used in 2001 by Peter Detkin [of Intel Corp.] . . . to describe the small companies . . . suing Intel for patent infringement" and looking for nuisance-value settlements. Steve Seidenberg, *Troll Control*, A.B.A. J., Sept. 2006, at 51, 53; see also Niro & Vickrey, *supra* note 15, at 153.

17. Aaron Homer, Comment, *Whatever It Is . . . You Can Get It on eBay . . . Unless You Want an Injunction—How the Supreme Court and Patent Reform Are Shifting Licensing Negotiations from the Conference Room to the Courtroom*, 49 S. TEX. L. REV. 235, 264 (2007).

18. *Wechsler v. Macke Int'l Trade, Inc.*, 486 F.3d 1286, 1293 (Fed. Cir. 2007) ("Normally, if the patentee is not selling a product, by definition there can be no lost profits. The only exception is where the patentee has the ability to manufacture and market a product, but for some legitimate reason does not. Even in these situations,

established royalty¹⁹ or, in the absence of an established royalty,²⁰ a reasonable royalty based on a hypothetical licensing negotiation prior to infringement. The purpose of reasonable royalties is twofold. Congress set reasonable royalties as the floor for placing patent owners in as good a position as they would have been had the infringer entered into a licensing agreement.²¹ Furthermore, without reasonable royalties, an infringer would have nothing to lose, and everything to gain, by infringing a patent with impunity in cases when a patent owner cannot prove lost profits or established royalties. But because the Federal Circuit has held that a reasonable royalty rate need not guarantee a defendant any profit, and could even result in significant losses if the defendant sells the product,²² some commentators argue that reasonable royalties are “completely unmoored from their original purpose”²³ and allow a patentee to extract far more than what it would in an actual arm’s length negotiation. As a consequence, fact-finders receive little concrete guidance in arriving at a reasonable royalty, often resulting in damage awards that are “at best arbitrary and at worst punitive.”²⁴

A patent “thicket,” one that ensnares a plaintiff’s patents and defendant’s accused products, exacerbates the problem. A thicket exists when many overlapping patents held by different entities “cover actual commercial products. So, a company desiring legitimately to launch a product cannot do so without getting multiple licenses, which may be difficult because of unreasonable independent demands – or because it is too difficult to determine which of the patent ‘thorns’ in the thicket endanger the product.”²⁵

Therefore, in assessing damages, due emphasis ought to be given to the defendant’s simultaneous discovery and independent development. Until that evidence is considered as a mitigating factor to cap patent damages, the goal of fostering innovation will be frustrated, and the result will be fewer research dollars and a loss of advancements in science. The loser will be not only the public but also the nation’s economic vigor.

To stay competitive in the 21st century, stimulate invention of new products, and innovate ways to save and improve lives, the competing goals

though, the burden on a patentee who has not begun to manufacture the patented product is commensurately heavy.” (citation and internal quotations omitted).

19. *Rude v. Wescott*, 130 U.S. 152, 165 (1889); *Mobil Oil Corp. v. Amoco Chems. Corp.*, 915 F. Supp. 1333, 1342 (D. Del. 1994).

20. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356, 1361 (Fed. Cir. 2006).

21. *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1352 (Fed. Cir. 1999); *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1544-45 (Fed. Cir. 1995) (en banc).

22. *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1338 (Fed. Cir. 2004).

23. Eric E. Bensen & Danielle M. White, *Using Apportionment to Reign in the Georgia-Pacific Factors*, 9 COLUM. SCI. & TECH. L. REV. 1, 2 (2008).

24. *Id.* at 40.

25. Donald S. Chisum, *Reforming Patent Law Reform*, 4 J. MARSHALL REV. INTEL. PROP. L. 336, 339 (2005).

that favor a plaintiff's interests, a defendant's incentives, and the public good must be harmonized. As shown below, a path toward harmonization might be through the law of how damages for patent infringement are measured. Specifically, the plaintiff should meet its burden of proving actual damages, thereby guaranteeing a plaintiff adequate compensation for any trespass.²⁶ The burden then should shift to the defendant to prove that the accused product was the result of its simultaneous discovery and independent development, e.g., concurrently conceiving and producing the accused product by working independently of the plaintiff's disclosed invention.

Part II puts forth the problem against a backdrop of Tesla, Marconi, and the great radio controversy. Part III provides a background discussion on the rationale of the patent system to encourage innovation. It also explores a public interest rationale for challenging so-called "low quality patents,"²⁷ which hurt scientific advancements by diverting resources away from research and to the courtroom. In addition, it offers an overview of the staggering costs of patent litigation that can cut against a defendant's incentive to test the validity or boundaries of even a low quality patent. Part IV discusses the calculation of patent damages, and a brief history of patent statutes relevant to measuring damages. Part V constructs an analysis of the "simultaneous discovery and independent development" consideration that might prove more useful, and more doctrinally satisfactory, to the goals of the patent system when assessing damages, while borrowing from well-established patent, copyright, and trade secret principles as support.

II. TESLA, MARCONI, AND THE GREAT RADIO CONTROVERSY

July 10, 2006, marked the 150th birthday of the great inventor Nikola Tesla. What a story it would be if one could imagine a world without Tesla. Yet, he is hardly a household name, and the name "Tesla" to some may even conjure up images of a heavy metal rock band.²⁸ Notwithstanding his lack of notoriety, Nikola Tesla is one of the most prolific inventors in history, having improved our daily lives with inventions that include alternating current used in power lines, electric motors and generators, wireless transmission, and radio.

26. 35 U.S.C. § 284 (2000) (establishing that compensation for infringement can be "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"); *Rite-Hite*, 56 F.3d at 1544 (interpreting the statutory mandate that a damage award shall be "in no event less than a reasonable royalty" as setting "a floor below which damage awards may not fall").

27. Homer, *supra* note 17, at 275.

28. Tesla (the band), which derived its name from events relating to Nikola Tesla, records music that is often referred to as a heavy metal or hard rock with a bluesy feel. *See* Tesla, <http://teslatheband.com/home.aspx> (last visited Sept. 14, 2008) (the web site for Tesla the band).

Few inventors have contributed more to the development of science and the economic growth of the United States. Indeed, Tesla's alternating current (AC) is used throughout the U.S. electrical grids today. But many of Tesla's major inventions are usually attributed to other individuals and, tragically, his rags-to-riches-to-rags life²⁹ had silenced many of his ideas that remained only in notebooks, which are still examined today for inventive clues.³⁰ Therein lies one of the greatest patent mysteries of all time, and the starting point for an article on how innovation may be better stimulated by recognizing a defendant's simultaneous discovery and independent development as a mitigating factor in the measure of patent damages.

A. *Tesla: The War of Current and the Radio Controversy*

Who actually invented radio? The answer might surprise most, and astound some.

The name Marconi usually makes the short list, if not an exact match, and he seems to get the most press. Certainly, his is a household name, he received patents, and his radio was a smashing commercial success in the early part of the 20th century. Perhaps this perpetual error is because reference textbooks are slow to change, thereby propagating error over the years. The more textbooks wrote about Marconi, especially the earlier textbooks, the greater the consensus. Encyclopedias mention Marconi as one who "developed"³¹ a successful radio, but make no mention of Tesla's contributions.³² And by the time any mistake was officially righted by a Supreme Court decision decades later (one might wonder whether textbook editors review court decisions), many intervening decades had already elevated Marconi to the status of the father of radio.

It is uncanny how history ignored Tesla. Penniless, living in a series of hotels as a recluse, and reported to have mostly only pigeons for company, perhaps any lack of historical attribution to Tesla was a product of his eccentricities. Then again, the failure to give proper recognition to Tesla might

29. See SAMANTHA HUNT, *THE INVENTION OF EVERYTHING ELSE* (2008) (a novel drawing upon events from Tesla's melodramatic, tragic, and true life told as a love letter to one of the world's most remarkable inventors, while commenting on possible views Tesla may have held regarding Marconi receiving most of the credit for the invention of radio).

30. For a discussion of Tesla's inventive clues, see *Nikola Tesla*, BRITANNICA, <http://www.britannica.com/EBchecked/topic/588597/Nikola-Tesla#tab=active~checked%2Citems~checked&title=Nikola%20Tesla%20--%20Britannica%20Online%20Encyclopedia> (last visited Sept. 14, 2008).

31. For an example of encyclopedias crediting Marconi, see *Guglielmo Marconi*, BRITANNICA, <http://www.britannica.com/EBchecked/topic/364287/Guglielmo-Marconi#tab=active~checked%2Citems~checked&title=Guglielmo%20Marconi%20--%20Britannica%20Online%20Encyclopedia> (last visited Sept. 14, 2008).

32. See *Nikola Tesla*, *supra* note 30.

have more to do with the years of silence by Tesla himself, which suppressed his further contributions (beyond his initial input) to radio. His story shows how patent laws and the cost of litigation play an important role in promoting, or quashing, innovation. His story merits discussion.

1. Patent Royalties Denied

To this day, scientists all over the world are amazed at how prescient Tesla was in his inventions: “He would never get around to making them practicable for commercial use, but they are still being investigated more than eighty years later, as shown by patents recently issued.”³³ That is an amazing story in itself.

Without digression, however, the focus here is on how events took place that impeded other advancements by Tesla relating specifically to the radio. It was, after all, Tesla who provided the “spark of thought” and “suggestions which have anticipated later developments in the radio art.”³⁴

Tesla arrived in New York City with four cents in his pocket in 1884, which, for context, was the same year the people of France gave America the gift of the Statute of Liberty.³⁵ He also brought a letter of introduction addressed to Thomas Alva Edison and written by Charles Batchelor, a close friend and European associate of Edison. Tesla received a job interview with Edison, and handed Edison the letter. It read: “I know two great men and you are one of them; the other is this young man!”³⁶

Edison hired Tesla as a mechanic to repair a dynamo, the original name for a direct current (DC) electrical generator, for one of Edison’s customers. Before long, Tesla proposed to Edison a cost-saving plan for redesigning the dynamo to make it more efficient. Edison replied, “There’s fifty thousand dollars in it for you—if you can do it.”³⁷ Working day and night for months, Tesla successfully achieved a redesign. When Tesla asked about the bonus, he was told the bonus was merely intended in jest; feeling cheated, Tesla resigned.³⁸

Then, depressing periods haunted Tesla, who toiled as a laborer, barely managing to survive until he “conceived” and developed an “alternating cur-

33. MARGARET CHENEY, *TESLA: MAN OUT OF TIME* 79 (Simon & Schuster 2001) (1981); *see also id.* at 60 (“Like a number of Tesla’s inventions, they found no immediate use and were forgotten. But quite recently in the twentieth century a similar process has gained attention, without recognition being given to Tesla’s prior inventions.”); *id.* at 33 (“Potentially valuable inventions were often put aside without the final time-consuming perfection required for commercial success.”).

34. *Id.* at 16.

35. *Id.* at 49, 65.

36. *Id.* at 53.

37. *Id.* at 55.

38. *Id.* at 57 (“‘Tesla,’ [Edison] exclaimed, ‘you don’t understand our American humor.’”).

rent system.” Investors who saw the “future” helped him to form a business, the Tesla Electric Company, in April 1887.³⁹ As the market for electricity grew, fortunes were at stake. Edison’s company, deeply invested in DC, would vanish unless it successfully influenced public opinion to favor his DC system by using scare tactics that Tesla’s AC system was dangerous. Thus began the “war of currents.”⁴⁰

While Edison was spreading propaganda in favor of DC systems and smearing Tesla’s alternating current, Tesla was filing patent applications on AC systems with the United States Patent and Trademark office, and received forty patents by 1891.⁴¹ When air brakes mogul George Westinghouse invested in Tesla’s idea of a future based on alternating current, Tesla stood to turn a small fortune from patent royalties, and possibly become the world’s wealthiest man.

As bad luck would have it, an economic depression hit the United States, and payment of the Tesla patent royalties would sink Westinghouse’s company. In a magnanimous gesture to ensure the company remained afloat to give his “system to the world,” Tesla told Westinghouse he would forfeit the promised patent royalties to save the company so that it could continue developing Tesla’s idea: “Here is your contract and here is my contract – I will tear both of them to pieces, and you will no longer have any troubles from my royalties.”⁴²

With Tesla then feeling the pinch financially, and without the money necessary to conduct research and development, one can only wonder: “How many discoveries were thus to be lost to society?”⁴³

2. Radio Contributions Silenced

Within the timeline of radio, no event was more ominous than the AC/DC war of current between Tesla and Edison. Frustrated by the *ad hominem* attacks and depressed by several lawsuits over his AC inventions,⁴⁴ Tesla finished his consulting work with the Westinghouse Corporation and turned his attention away from alternating currents. For the first time in

39. *Id.* at 60-61.

40. *Id.* at 65-69 (Edison’s scare tactics included the first ever electric chair at Sing Sing prison, which used Tesla’s alternating current as the means of electrocution.).

41. *Id.* at 61-62 (With his early AC patent applications, Tesla sent electric generator motors to the Patent Office for testing. His applications flew through the Patent Office’s examination process, and by 1891 he had received forty AC patents.).

42. *Id.* at 73-74 (“By destroying the contract, Tesla not only relinquished his claim to millions of dollars in already earned royalties but to all that would have accrued in the future.”).

43. *Id.* at 74.

44. *Id.*

years, Tesla was left alone in his Manhattan laboratory to immerse himself in other interests.

Tesla became obsessed with wireless telephone, otherwise known simply as “wireless” or by its modern name, “radio.”⁴⁵ Absorbed completely in radio, he was without distraction until he delivered a lecture that was hailed as a major scientific breakthrough, making him somewhat a prophet and catapulting him back into the limelight.

In 1893 in St. Louis, Tesla “described in detail the principles of radio broadcasting” and “made the first public demonstration ever of radio communication, although Marconi is generally credited with having achieved this feat in 1895.”⁴⁶ By virtue of this 1893 lecture-demonstration, he was recently recognized (posthumously) by the Institute of Electrical and Electronics Engineers (IEEE) as discovering radio. As a successor to the Institute of Radio Engineers, which was founded almost a century ago, the IEEE⁴⁷ had this to say about Tesla’s contribution to radio:

In a lecture-demonstration given in St. Louis in the same year – two years before Marconi’s first experiments – Tesla also predicted wireless communication; the apparatus that he employed contained all the elements of spark and continuous wave that were incorporated into radio⁴⁸

Tesla filed and received the earliest radio patent issued by the United States Patent and Trademark Office. Tesla’s United States Patent No. 645,576, entitled “System of Transmission of Electrical Energy,” issued on March 20, 1900 from an application filed September 2, 1897.⁴⁹ In that patent, Tesla declared that “the apparatus which I have shown will obviously have many other valuable uses – as, for instance, when it is desired to transmit intelligible messages to great distances.”⁵⁰ Tesla’s other radio patent No.

45. *Id.* at 89.

46. *Id.* at 95-96; *see also id.* at 97 (He “demonstrated all the fundamental principles of modern radio: 1. an antenna or aerial wire; 2. a ground connection; 3. an aerial-ground circuit containing inductance and capacity; 4. adjustable inductance and capacity (for tuning); 5. sending and receiving sets tuned to resonance with each other; and 6. electronic tube detectors.”).

47. The IEEE was formed with “the merger of the AIEE (American Institute of Electrical Engineers, formed in 1884) and the IRE (Institute of Radio Engineers, formed in 1912).” IEEE, History of the IEEE, <http://www.ieee.org/web/aboutus/history/index.html> (last visited Sept. 14, 2008).

48. *See* IEEE, Nikola Tesla, 1856-1943, http://www.ieee.org/web/aboutus/history_center/biography/tesla.html (last visited Sept. 14, 2008).

49. For an image of Tesla’s patent, visit the United States Patent and Trademark Office website at <http://www.uspto.gov/patft/> (last visited Sept. 14, 2008) and enter patent number 645,576 in the appropriate field.

50. U.S. Patent No. 645,576 at 5, col.1 ll.28-32 (filed Sept. 2, 1897).

649,621, entitled “Apparatus for Transmission of Electrical Energy,” issued on May 15, 1900, less than three months after it was filed on February 19, 1900.⁵¹ This patent established a system for propagating “natural medium from one point to another remote point therefrom”⁵² by transmitting signals.

In 1895 in London, Marconi had demonstrated a wireless having a ground connection, antenna, and other equipment previously described in publications of Tesla’s 1893 lecture.⁵³ Marconi pursued his own patent application on the radio on November 10, 1900.⁵⁴ Initially, the Patent Office rejected Marconi’s application in view of Tesla’s already-issued patent. During the prosecution history,⁵⁵ Marconi denied ever reading anything on Tesla’s system, a claim that a United States Patent Examiner branded as “absurd.”⁵⁶ Specifically, on October 15, 1903, the Examiner noted:

Many of the claims are not patentable over Tesla patent numbers 645,576 and 649,621, of record, the amendment to overcome said references as well as Marconi’s pretended ignorance of the nature of a “Tesla oscillator” being little short of absurd. Ever since Tesla’s famous lecture on alternating current of high frequency, delivered before the American Institute of Electrical Engineers in 1891 . . . the term “Tesla oscillator” has become a household word . . .

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However, Marconi would have the last word with the Patent Office. Marconi’s company was fanning the fire of interest in radio with its commercial success, rewarded by throngs of Wall Street investors, when one of Tesla’s confidants remarked to Tesla, “Looks as if Marconi got the jump on

51. For an image of this patent, again visit the Patent Office website at <http://www.uspto.gov/patft/> (last visited Sept. 14, 2008) and enter patent number 649,621 in the appropriate field.

52. U.S. Patent No. 649,621 at 1, col.1 ll.25-26 (filed Feb. 19, 1900).

53. CHENEY, *supra* note 33, at 97-98.

54. For an image of Marconi’s patent, visit the United States Patent and Trademark Office website at <http://www.uspto.gov/patft/> (last visited Sept. 14, 2008) and enter patent number 763,772 in the appropriate field.

55. The PTO records relating to an issued patent are usually called a “file history” or “prosecution history” in today’s parlance, and historically were called a “file wrapper.” 1 MANUAL OF PATENT EXAMINING PROCEDURE § 719, at 700-281 (8th ed. 2006) (“The folder in which the U.S. Patent and Trademark Office maintains the application papers is referred to as a file wrapper.”). Regardless of the nomenclature, these include all publicly accessible and non-expunged documents made of record in the folder that relate to the issued patent.

56. CHENEY, *supra* note 33, at 98.

57. MARGARET CHENEY & ROBERT UTH, *TESLA: MASTER OF LIGHTNING* 68 (Jim Glenn, ed., 1999).

you.’ Tesla replied, ‘Marconi is a good fellow. Let him continue. His is using seventeen of my patents.’”⁵⁸

Like many struggling inventors at that time, Tesla found himself fighting against the crushing influence of monopolies and big companies, and the radio was no exception.⁵⁹ Radio Corporation of America (RCA) was formed with a controlling interest owned by General Electric, and then acquired the assets of Marconi’s company.⁶⁰ Adding to Tesla’s struggles, the Patent Office suddenly and surprisingly changed its course and granted a patent to Marconi for the invention of the radio.⁶¹ Marconi’s United States Patent No. 763,772, entitled “Apparatus for Wireless Telegraphy,” issued on June 28, 1904.⁶²

But the watershed moment for Tesla and his radio silence came in 1909. That year, it was Marconi – not Tesla – who received the Nobel Prize in Physics for radio.⁶³ Considering this to be a slap in the face, Tesla asserted his radio patent in an infringement suit against Marconi.⁶⁴ Tesla’s allegations forewarned the issues in connection with a simultaneous discovery and independent development:

My patents describe a new and original wireless system characterized by the employment of four circuits in perfect resonance, a condition essential to successful practice. Long after their grant to

58. *Id.*

59. As an historical anecdote, these were times of monopolies and oligopolies. For instance, J.P. Morgan orchestrated a merger of Edison’s companies and others into a new company called the General Electric Company. CHENEY, *supra* note 33, at 70.

60. See *RCA, About RCA – The Radio Corporation of America*, available at <http://home.rca.com/en-US/PressReleaseDetail.html?Cat=RCAHistory&MN=6> (last visited Sept. 14, 2008); *RCA Corporation*, 9 THE NEW ENCYCLOPAEDIA BRITANNICA 968-69 (2007); RUSSELL W. BURNS, COMMUNICATIONS: AN INTERNATIONAL HISTORY OF THE FORMATIVE YEARS 427-28 (Michael Faraday House 2004); HUGH R. SLOTTEN, RADIO AND TELEVISION REGULATION IN THE UNITED STATES 1920–1960 4 (The Johns Hopkins Univ. Press 2000); F. LESLIE SMITH, JOHN W. WRIGHT II & DAVID H. OSTROFF, PERSPECTIVES ON RADIO AND TELEVISION: TELECOMMUNICATIONS IN THE UNITED STATES 21 (Lawrence Erlbaum 4th ed. 1998); GERARD JONES, HONEY, I’M HOME!, SITCOMS: SELLING THE AMERICAN DREAM 7 (Grove Wedenfeld 1993).

61. CHENEY & UTH, *supra* note 57, at 68.

62. For an image of Marconi’s patent, visit the United States Patent and Trademark Office website at <http://www.uspto.gov/patft/> (last visited Sept. 14, 2008) and enter patent number 763,772 in the appropriate field.

63. See Nobelprize.org, The Nobel Prize in Physics 1909, http://nobelprize.org/nobel_prizes/physics/laureates/1909/ (last visited Sept. 14, 2008). Marconi shared the Nobel Prize with Karl Ferdinand Braun, “in recognition of their contributions to the development of wireless telegraphy.” *Id.*

64. *Tesla Sues Marconi on Wireless Patent: Alleges that Important Apparatus Infringes Prior Rights Granted to Him*, N.Y. TIMES, Aug. 4, 1915, at 4 [hereinafter *Tesla Sues*].

me Marconi filed an application and secured a patent which covers exactly the same fundamental arrangements. Such cases happen occasionally⁶⁵

Tesla would lack the wherewithal to follow through on a lengthy and expensive patent litigation.⁶⁶ Without an incentive to offer further advancements to radio, Tesla resigned himself to radio silence.

B. Tesla vs. Marconi: The Supreme Court Voices Its Opinion

It was not until 1975 that Tesla was finally inducted into the National Inventors Hall of Fame.⁶⁷ And the Smithsonian Institution has never substantially acknowledged Tesla for his work on, and contributions to, radio.⁶⁸ But in 1943, six months after his death, the United States Supreme Court would give Tesla in death what evaded him in life: recognition as the first to demonstrate and patent the principles of radio.

The road to the Supreme Court would begin in 1916, when the Marconi Company asserted its radio patents⁶⁹ in an infringement suit against the United States in the Court of Claims.⁷⁰ Then, in 1935, the Court of Claims invalidated Marconi's patents,⁷¹ and the appeal finally reached the Supreme Court in 1943. The Supreme Court characterized Tesla's 1893 lecture-demonstration and his later patents:

[In 1893] Tesla, who was then preoccupied with the wireless transmission of power for use in lighting or for the operation of dynamos, proposed, in a lecture . . . the use of . . . wireless transmission of signals.

. . . .

The Tesla patent No. 645,576, applied for September 2, 1897 and allowed March 20, 1900, disclosed a four-circuit system, having

65. *Id.*

66. CHENEY & UTH, *supra* note 57, at 68.

67. CHENEY, *supra* note 33, at 327.

68. CHENEY & UTH, *supra* note 57, at 72.

69. United States Patent No. 609,154 (issued to Lodge), No. 763,772 (issued to Marconi), No. 803,684 (issued to Fleming), and Reissue No. 11,913 (issued to Marconi), all of which were assigned to Marconi's company and its successors in interest.

70. *Marconi Wireless Tel. Co. of Am. v. United States*, 320 U.S. 1, 4 n.1 (1943) ("On November 20, 1919, The Marconi Company assigned to the Radio Corporation of America all of its assets, including the patents here in suit, but reserved, and agreed to prosecute, the present claims against the United States, on which it had instituted suit on July 29, 1916.")

71. *Id.* at 67 (Rutledge, J., dissenting).

two circuits each at transmitter and receiver, and recommended that all four circuits be tuned to the same frequency. Tesla's apparatus . . . could, without change, be used for wireless communication, which is dependent upon the transmission of electrical energy.⁷²

The Supreme Court acknowledged "Marconi's reputation as the man who first achieved successful radio transmission."⁷³ In an about face, the Court brushed off any evidentiary weight to this reputation:

[R]eputation, however well-deserved, does not entitle him to a patent for every later improvement which he claims in the radio field. Patent cases, like others, must be decided not by weighing the reputations of the litigations, but by careful study of the merits of their respective contentions and proofs.⁷⁴

Likewise, Marconi's success in commercializing the first radio is not proof he was the first inventor.⁷⁵ As between two or more inventors, the question is who first conceived of the invention.⁷⁶ According to the Court, Marconi was not the first to conceive of radio. Rather, Tesla's lecture, demonstration, and later published patent anticipated⁷⁷ several features of the Marconi patent,⁷⁸ while other features were developed by Lodge and Stone after the date that Tesla's patent issued but before the date of Marconi's patent.⁷⁹ Thus, notwithstanding Marconi's success in commercializing the first radio, the Court concluded that Marconi was not the first inventor.⁸⁰ The first radio patent belonged to Tesla.⁸¹

72. *Id.* at 13-14 (majority opinion).

73. *Id.* at 37.

74. *Id.* at 38.

75. *Id.* at 35 ("Commercial success achieved by the latter inventor and patentee cannot save his patent from the defense of anticipation by a prior inventor.").

76. *Id.* at 34.

77. *Id.* at 15.

78. *Id.* at 16-17, 31 ("Tesla, too, had shown the tuning of the antenna circuit at the transmitter to the frequency developed by the charging circuit, and the tuning of both circuits at the receiver to the frequency thus transmitted.").

79. *Id.* at 16; *see also id.* at 17 ("Lodge thus supplied the means of varying inductance and hence tuning which was lacking in the Tesla patent."); *id.* at 33 (Later innovators, like Stone, recognized that Marconi's claimed invention was "the same as that employed by Tesla.").

80. *Id.* at 38 ("Marconi's patent involved no invention over Lodge, Tesla, and Stone.").

81. Months after his death, Tesla was finally declared (some would argue) to be the true inventor of radio. The contributions of Lodge and Stone were important in the Court's conclusion to invalidate the Marconi patents, but in the timeline of radio, they were filed after Tesla's radio patents.

While the Supreme Court recognized Tesla as one of the founders of radio, and arguably the father of radio, this recognition would be a “purely symbolic victory, for Tesla’s radio was suppressed.”⁸² During the period of radio’s most rapid growth from 1915 until 1940, “Tesla watched quietly from the sidelines”⁸³ as others accrued fame and fortune from his ideas.

III. FANNING THE FLAMES OF INNOVATION WITHOUT DOUSING THE INTERESTS OF GENIUS

During Tesla’s silence, Marconi successfully asserted his radio patent against his competitors for years. Imagine what the competition could have done without fear of Marconi’s lawsuits and the potential for large patent damage awards that can impair, and even bankrupt, a defendant. This section discusses how defending against patent monopolies can inhibit innovation, cause competitors to steer too far around that which a patentee actually invented, and neglect improvements that otherwise might be made.

A. The Patent System’s Goal of Promoting Innovation

In recent years, an increasing number of attacks have been levied against the United States Patent and Trademark Office (“Patent Office”) for the quality of examination it gives to patent applications. Critics argue that this examination results in the Patent Office granting patent claims that are broader than the invention merits.⁸⁴ Amidst this criticism lies an undercurrent of cries to reform the Patent Office, which – though not perfect – serves an invaluable function in the goal of promoting science and progress.

1. Incentives to Innovate

Abraham Lincoln understood the value of patents: ““The patent system . . . added the fuel of interest to the fire of genius.””⁸⁵ On 15th Street NW and

82. GEORGE TRINKAUS, *RADIO TESLA: THE SECRET OF TESLA’S RADIO AND WIRELESS POWER* 1 (1993).

83. *Id.*

84. See, e.g., Jay P. Kesan & Andres A. Gallo, *Why “Bad” Patents Survive in the Market and How Should We Change?—The Private and Social Costs of Patents*, 55 EMORY L.J. 61, 63 & nn.2, 4 (2006) (collecting recent articles criticizing the Patent Office for issuing “so-called ‘bad’ or improvidently granted patents”).

85. Jay I. Alexander, *Cabining the Doctrine of Equivalents in Festo: A Historical Perspective on the Relationship Between the Doctrines of Equivalents and Prosecution History Estoppel*, 51 AM. U. L. REV. 553, 554 (2002) (omission in original); see also Diana D. McCall, Note, *Stating the Obvious: Patents and Biological Material*, 2003 U. ILL. J.L. TECH. & POL’Y 239, 242 (omission in original); Steven L. Nichols, Comment, *Hippocrates, the Patent-Holder: The Unenforceability of Medical Procedure Patents*, 5 GEO. MASON L. REV. 227, 227 (1997).

overlooking Pennsylvania Avenue in Washington, D.C., those words are carved in the stone atop the Commerce Building's north end, which was originally designed to house the Patent Office.⁸⁶ Lincoln saw the importance and prosperity that intellectual property brings to a nation, as did the Constitution's framers in 1787 by giving Congress the power to "promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."⁸⁷

In his February 11, 1859 "Lecture on Discoveries and Inventions,"⁸⁸ Lincoln delivered one of the most stirring defenses to the patent system. Lincoln sets the backdrop for his lecture by giving a brief account of a world history that was slow to change and lumbering along years between advances. These folks he dubbed the "Old Fogy."⁸⁹ In contrast to the considerably less advanced Old Fogy, Lincoln juxtaposed the technological advantages flowing from a "Young America."⁹⁰ Lincoln then urged that the great difference between Young America and the Old Fogy is the result of "Discoveries, Inventions, and Improvements," which follow from "observation, reflection and experiment."⁹¹ He then summoned an example apropos to the topic of discoveries and inventions:

For instance, it is quite certain that ever since water has been boiled in covered vessels, men have seen the lids of the vessels rise and fall a little, with a sort of fluttering motion, by force of the steam; but so long as this was not specially observed, and reflected and experimented upon, it came to nothing. At length however, after many thousand years, some man observes this long-known effect of hot water lifting a pot-lid, and begins a train of reflection upon it. He says "Why, to be sure, the force that lifts the pot-lid, will lift any thing else, which is no heavier than the pot-lid." "And, as man has much hard lifting to do, can not this hot-water power be made to help him?" He has become a little excited on the subject, and he fancies he hears a voice answering "Try me" He does try it; and the *observation, reflection, and trial* gives to the world the control of that tremendous, and now well known agent,

86. The United States Patent and Trademark Office (USPTO) is an agency of the United States Department of Commerce.

87. U.S. CONST. art. I, § 8, cl. 8.

88. *See generally* LINCOLN: SPEECHES AND WRITINGS 1859-1865, at 3-11 (1989) [hereinafter LINCOLN].

89. *Id.* at 3-4.

90. *Id.*

91. *Id.* at 4 (emphasis omitted).

called steam-power. This is not the actual history in detail, but the general principle.⁹²

According to Lincoln, the “first inventor”⁹³ would be that person who, through experimentation, trial and error, succeeded in making the thing work.⁹⁴ A person might merely describe the effects of steam or prophetically announce the use of steam to move a heretofore inconceivable locomotive, but the inventor in the sense of a patent is someone who makes the steam engine operable.⁹⁵

Lincoln also anticipated the simultaneous-discovery-and-independent-development defense. According to Lincoln, giving sole credit to the person who described steam, or solely to the person who made it operable, ignores reality and thwarts common sense. “What one observes, and would himself infer nothing from, he tells to another, and that other at once sees a valuable hint in it. A result is thus reached which neither *alone* would have arrived at.”⁹⁶

After intimating his opinion, Lincoln made clear that discoveries, inventions, and improvements followed more rapidly with “the introduction of Patent-laws”⁹⁷ in 1624.⁹⁸ And so it was that old-fogyism, of which Lincoln spoke as smothering the intellects and energies of the inventor, gave way to a young America motivated by the patent laws.

On the cusp of the sesquicentennial of that 1859 lecture and the bicentennial of his 1809 birth, Lincoln’s conclusion so nearly perfectly epitomizes the rationale for patent laws today as it did then:

Next came the Patent laws. These began in England in 1624; and, in this country, with the adoption of our constitution. Before then, any man might instantly use what another had invented; so that the inventor had no special advantage from his own invention. The patent system changed this; secured to the inventor, for a limited time, the exclusive use of his invention; and thereby added the fuel of *interest* to the *fire* of genius, in the discovery and production of new and useful things.⁹⁹

92. *Id.* at 4-5.

93. *Id.* at 5 (“But was this first inventor of the application of steam, wiser or more ingenious than those who had gone before him? Not at all. Had he not learned much of them, he never would have succeeded—probably, never would have thought of making the attempt.”).

94. *Id.* at 4-5.

95. *See, e.g., id.* at 3, 5.

96. *Id.* at 6.

97. *Id.* at 8-9.

98. *Id.* at 9.

99. *Id.* at 10-11.

Perhaps voices discontent with the present Patent Office are justified, or quite possibly their criticisms are misplaced. Still, Lincoln made a strong case for the patent system as he saw that system reaching beyond wealthy Americans. Instead, he believed that it would also emancipate the minds of masses, thus breaking the mental shackles that perceived the educated as superior beings. As a result, Lincoln tried to convince everyone – including women¹⁰⁰ and African-Americans¹⁰¹ – that they were capable of using the patent system as a method of rising to equality.¹⁰²

Lincoln carried his pro-patent system message to Milwaukee, Wisconsin later that same year as his Jacksonville lecture. On September 30, 1859 in a lecture given to the members of the Wisconsin State Agricultural Society and citizens of Wisconsin, Lincoln extolled the benefits of pursuing discoveries, inventions, and improvements regardless of one's station in life: "I know of nothing so pleasant to the mind, as the discovery of anything which is at once *new and valuable* – nothing which so lightens and sweetens toil, as the hopeful pursuit of discovery."¹⁰³ Moreover, no one should feel limited by education or think of inventors solely as college educated.¹⁰⁴

Lincoln's passion for technology, the inventive process, and the patent system was that of a person who spoke from his own experience of relying¹⁰⁵ on the patent system. Abraham Lincoln's words are as apt today as they were when written nearly 150 years ago. It is one thing to be a genius, but being

100. Women, it was suggested by Lincoln, were possibly the first of all inventors:

And this reminds me of what I passed unnoticed before, that the very first invention was a joint operation, Eve having shared with Adam in the getting up of the apron. And, indeed, judging from the fact that sewing has come down to our times as "woman's work" it is very probable she took the leading part; he, perhaps, doing no more than to stand by and thread the needle. That proceeding may be reckoned as the mother of all "Sewing societies"; and the first and most perfect "world's fair" all inventions and all inventors then in the world, being on the spot.

Id. at 6-7.

101. "Lincoln believed that the right to patent an invention was fundamental. He even used the right to patent as a means of protesting the *Dred Scott* decision [that, as interpreted, proscribed blacks from] the right to obtain a patent. In an executive rebellion attempting to undermine the decision, Lincoln insisted that federal officers issue patents to black inventors." Nichols, *supra* note 85, at 227 n.1 (citation omitted).

102. LINCOLN, *supra* note 88, at 10.

103. *Id.* at 99.

104. *Id.*

105. Geri J. Yonover, *What Hath (Not) Chakrabarty Wrought: From the Mouse that Roared to Hello Dolly and Beyond*, 32 VAL. U. L. REV. 349, 354 n.20 (1998) ("Several famous Americans relied on the patent system for protection. Before he became President, Abraham Lincoln himself obtained a patent for a device to free boats from shoals." (referencing U.S. Patent No. 6469 (filed Mar. 10, 1849))).

motivated is a quite different matter – the patent system accounts for the difference.

2. Innovation Turned on Its Head

The Supreme Court in *Marconi* recognized a policy that favors “protection of the public from the threat of an invalid patent.”¹⁰⁶ Yet, Marconi’s patent withstood attack in many district courts,¹⁰⁷ and thus the law “united with almost universal repute in acknowledging Marconi as the first to establish wireless telegraphy on a commercial basis.”¹⁰⁸ Seen in this light, rather than “promote” science as envisioned in the Constitution, a patent monopoly may actually hinder legitimate research and development, stymie innovation, and chill healthy competition. Marconi received the boon of the patent monopoly for decades, which he used in a patent litigation war he waged against almost all of the pioneers of radio:

Litigation followed at once. Among Marconi’s American victories were the decisions cited above. Abroad the results were similar. Until 1935, when the Court of Claims held it invalid in this case, no court had found Marconi’s patent wanting in invention. It stood without adverse judicial decision for over thirty years.¹⁰⁹

A patent and its corresponding monopoly is a privilege,¹¹⁰ and the public’s interest in upholding a “good patent” is commensurate with the need to ensure “that a bad one be definitively stricken.”¹¹¹ An invalid patent may be an improper restraint on free trade.¹¹² Therefore, the Supreme Court favors judicial testing of patent validity and “invalidation of specious patents.”¹¹³

106. *Marconi Wireless Tel. Co. of Am. v. United States*, 320 U.S. 1, 58 (1943).

107. *See id.* at 64 & n.1 (Rutledge, J., dissenting).

108. *Id.* at 64 (Rutledge, J., dissenting) (footnote omitted).

109. *Id.* at 67 (Rutledge, J., dissenting) (footnotes and citation omitted).

110. *Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found.*, 402 U.S. 313, 344 (1971) (“The patent is a privilege. But it is a privilege which is conditioned by a public purpose.”).

111. *Id.* at 331 n.21 (“Patent validity raises issues significant to the public as well as to the named parties.” (quoting *Technograph Printed Circuits, Ltd. v. United States*, 372 F.2d 969, 977-78 (Ct. Cl. 1967))); *see also id.* at 343 (The Supreme Court has long held that “[a] patent by its very nature is affected with a public interest. It is an exception to the general rule against monopolies and to the right to access to a free and open market.” (internal punctuation omitted) (quoting *Precision Instrument Mfg. Co. v. Auto. Maint. Mach. Co.*, 324 U.S. 806, 816 (1945))).

112. *Edward Katzinger Co. v. Chi. Metallic Mfg. Co.*, 329 U.S. 394, 400–01 (1947) (“[This principle is] firmly grounded upon the broad public interest in freeing our competitive economy from the trade restraints which might be imposed by price-fixing agreements stemming from narrow or invalid patents. . . . In thus emphasizing the necessity of protecting our competitive economy by keeping open the way for

According to the Supreme Court, the patent system was carefully crafted such that striking a “balance between the interest in motivating innovation and enlightenment by rewarding invention with patent protection on the one hand, and the interest in avoiding monopolies that unnecessarily stifle competition on the other, has been a feature of the federal patent laws since their inception.”¹¹⁴ As Supreme Court Justice Stephen G. Breyer argued: “sometimes *too much* patent protection can impede rather than ‘promote the Progress of Science and useful Arts,’ the constitutional objective of patent and copyright protection.”¹¹⁵

The silencing of Tesla was a case in point. Discouraged by the lack of credit, he became a mere spectator during radio’s developmental years, “and the technology that developed is distinctly different in many essential respects.”¹¹⁶

B. *Litigation Costs that Cool the Fire of Genius*

Now, more than ever before, the challenge to America and the assault on a free-market system is not from Lincoln’s fuel of interest or fire of genius. The challenge is from a patent system that rewards patent monopolies with impunity. In theory, invalid patents are subject to attack. The reality is dif-

interested persons to challenge the validity of patents which might be shown to be invalid, the Court was but stating an often expressed policy that ‘It is the public interest which is dominant in the patent system,’ and that the right to challenge ‘is not only a private right to the individual, but it is founded on public policy, which is promoted by his making the defense, and contravened by his refusal to make it.’” (citations omitted)); *see also Marconi*, 320 U.S. at 48 (“[T]he public interest that an invalid patent be not sustained is sufficiently great . . .”); *Biotec Biologische Naturverpackungen GmbH & Co. v. Biocorp, Inc.*, 249 F.3d 1341, 1353 (Fed. Cir. 2001) (noting “[t]he public interest in invalidating invalid patents”).

113. *United States v. Glaxo Group Ltd.*, 410 U.S. 52, 69 (1973) (“Certainly, it is true, as the Court states, that there is a public interest favoring the judicial testing of patent validity and the invalidation of specious patents. For when a patent is invalid, ‘the public parts with the monopoly grant for no return, the public has been imposed upon and the patent clause subverted.’” (citations omitted)).

114. *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 63 (1998) (“[T]he patent system represents a . . . bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time.”).

115. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 126 (2006) (Breyer, J., dissenting) (dissenting to the Supreme Court’s per curiam opinion dismissing a writ of certiorari as improvidently granted). Justices John Paul Stevens and David H. Souter joined in Justice Breyer’s dissent. *Id.*

116. TRINKAUS, *supra* note 82, at 1.

ferent. As shown by the great radio controversy, it is difficult to challenge a patent on grounds of invalidity.¹¹⁷

Many economic challenges face corporate America in defending against allegations of patent infringement. In this competitive market, the decision maker can ill afford to ignore sunk costs in legal fees that bite into the proverbial bottom line, but must instead pay close attention to the reality of attorneys' fees billed in six minute increments. Consequently, litigation costs deter meritorious challenges. Mindful of these considerations, the Federal Circuit has noted that, "if an invalid patent is issued, competitors may be deterred from challenging it by the substantial cost of litigation. Even if a successful challenge is brought, competition may be suppressed during the pendency of the litigation."¹¹⁸

The Federal Circuit's view embraces a fundamental question. How much will that patent infringement suit cost? Posing that question in a recent survey revealed a startling answer: Possibly millions (win or lose).¹¹⁹ The Law Practice Management Committee of the American Intellectual Property Law Association ("AIPLA") conducts a survey of its members including questions relating to costs of various legal services.¹²⁰ One such topic is the cost of patent litigation. The most recent survey results were published in July 2007.¹²¹

The breakdown for typical patent litigation costs considered the amount at risk as well as the amount spent at two stages during the litigation: through the end of discovery, and "total costs"¹²² through disposition of the case.¹²³ Through discovery for a case when \$1 million was at risk, the cost of discov-

117. The Marconi patent No. 763,772 serves as an example of a nearly four decade monopoly for an invalid and improvidently issued patent granted June 28, 1904, but not finally struck down until the Supreme Court's 1943 decision. *Marconi*, 320 U.S. at 4, 38. For many of those years, Marconi successfully sued for damages and injunctions against competition, including National Signalling Company, Kilbourne & Clark Manufacturing Company, De Forest Telephone & Telegraph Company, and Atlantic Communication Company. *Id.* at 36-37, 37 n.21.

118. *Prima Tek II, L.L.C. v. Polypap, S.A.R.L.*, 412 F.3d 1284, 1287 (Fed. Cir. 2005).

119. AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY, 2007, at 25-26 (2007).

120. *Id.* at 1.

121. *Id.* at title page.

122. Total cost included outside legal and paralegal services, local counsel, travel expenses, fees and costs for court reporters, photocopies, couriers, exhibit preparation, expert witnesses, and jury consultants. *Id.* at 25.

123. *Id.*

ery rose from \$250,000 in 2001 to \$350,000 in 2007.¹²⁴ The total costs of defense through trial rose from \$499,000 in 2001 to \$600,000 in 2007.¹²⁵

Turning to the next echelon where the patent owner alleged damages in excess of \$1 million, the cost of discovery rose from \$797,000 in 2001 to \$1.25 million in 2007,¹²⁶ while the total costs of defense through trial rose from \$1.499 million in 2001 to \$2.5 million in 2007.¹²⁷ When more than \$25 million was at risk, the discovery costs increased from \$1.508 million in 2001 to \$3.000 million in 2007,¹²⁸ according to the AIPLA report, with total costs of defense through trial increasing from \$2.992 million in 2001 to \$5.000 million in 2007.¹²⁹

Therefore, patent litigation is expensive, driven in part by the amount at stake.¹³⁰ Indeed, the amount at stake necessarily could exceed the present value of the accused infringer, thereby forcing the defendant out of business and into bankruptcy.¹³¹ Also, the cost associated with patent litigation is a result of the high burden of proving a patent to be invalid, which is an affirmative defense to charges of patent infringement. Patents are presumed valid as a matter of patent law.¹³² The plaintiff asserting a patent in a patent infringement lawsuit need not show that the patent is valid and enforceable. Rather, patent law places the burden on the defendant to prove invalidity,¹³³

124. *Id.* at 25-26. When the plaintiff demanded \$1 million in damages, the costs of discovery were \$250,000 in 2001, \$290,000 in 2003, and \$350,000 in 2005 and 2007, respectively. *Id.*

125. *Id.* The total costs through trial were \$499,000 in 2001, \$500,000 in 2003, \$650,000 in 2005, and \$600,000 in 2007. *Id.*

126. *Id.* When the plaintiff demanded more than \$1 million in damages, the costs of discovery were \$797,000 in 2001, \$1.001 million in 2003, and \$1.25 million in 2005 and 2007, respectively. *Id.*

127. *Id.* The total costs through trial were \$1.499 million in 2001, \$2 million in 2003 and 2005, and \$2.5 million in 2007. *Id.*

128. *Id.* When the plaintiff demanded more than \$25 million in damages, the costs of discovery were \$1.508 million in 2001, \$2.508 million in 2003, and \$3.000 million in 2005 and 2007, respectively. *Id.*

129. *Id.* The total costs through trial were \$2.992 million in 2001, \$3.995 million in 2003, \$4.500 million in 2005, and \$5.000 million in 2007. *Id.*

130. *See generally id.*

131. *See id.*

132. 35 U.S.C. § 282 (2000 & Supp. 2003) (“A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.”).

133. *Id.* (“The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.”).

which requires the defendant to meet a high standard of clear and convincing evidence.¹³⁴

If a realistic remedy lies in challenging an improvidently issued patent, then something must be done to reduce the cost of litigation in a system that deters competitors from challenging patent invalidity or defending against patent damages. The defense proposed in this article is a small cost to impose on the inventor for receiving a patent monopoly.

The great radio controversy demonstrates how innovation can be turned on its head by the high cost of patent litigation. In the 1915 lawsuit between Tesla and Marconi, Marconi's Company claimed "ownership of all basic patent rights in the transmission of wireless messages."¹³⁵ In an interview with the *New York Times*, an attorney who represented Marconi gave the following statement:

Many individuals and companies have infringed the Marconi patents, and others have attempted to disprove the originality of our inventions, but when our present litigation shall have gone through the courts, I am confident that the leadership of the Marconi Company in the invention and development of wireless communication will be established.¹³⁶

It is true that Marconi may have done more to commercialize radio, and saw his stocks soar. It is equally true that Tesla lacked the "financial condition to litigate a case against a major corporation,"¹³⁷ and therefore Marconi wielded monopolistic power until the United States government¹³⁸ eventually took notice decades too late for Tesla.¹³⁹

Can invalid patents deter innovation? The great radio controversy suggests so, and should prompt a change in the way we look at promoting innovation. The message of Tesla makes evident that some form of intellectual property protection for a simultaneous discovery and independent development might better fortify incentives to undertake high risk R&D and could result in more investment across all stages of research.

134. *Nystrom v. TREX Co.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) ("A party seeking to establish that particular claims are invalid must overcome the presumption of validity in 35 U.S.C. § 282 by clear and convincing evidence.").

135. *Tesla Sues*, *supra* note 64, at 4.

136. *Id.*

137. *CHENEY & UTH*, *supra* note 57, at 68.

138. *See Marconi Wireless Tel. Co. of Am. v. United States*, 320 U.S. 1, 4, 38 (1943).

139. *CHENEY & UTH*, *supra* note 57, at 68.

IV. REMEDIES FOR PATENT INFRINGEMENT

*The Prestige*¹⁴⁰ is a period film set in the late 19th century that explores the competitive rivalry between two young stage magicians. Released in 2006 during the sesquicentennial of the year of Nikola Tesla's birth, a subplot explored the unusual brilliance of Tesla, hailing him "The Man Who Invented The Twentieth Century,"¹⁴¹ while portraying him as lacking the funds to carry out his research.

A successful patent infringement suit against Marconi may have helped to fund Tesla's research in radio during its peak developmental years, 1915 until 1940.¹⁴² But in an uncanny twist of fate, the inventor of radio slipped into financial ruin, lived out his life in a series of hotels, and died penniless, while Marconi enjoined others from competition and recovered damages for infringing his invalid radio patent, which brings us to the topic of remedies for patent infringement.

A. Law of Infringement

A patent gives the patentee the right to exclude for twenty years¹⁴³ all others from producing the claimed invention.¹⁴⁴ There are three different types of theories of patent infringement.

A defendant "directly" infringes a patent by making, using, offering to sell, selling, or importing into the United States any product that embodies the patented invention.¹⁴⁵ However, that is not the only way to infringe a patent.

140. THE PRESTIGE (Warner Bros. Pictures 2006).

141. The Prestige, Features, <http://video.movies.go.com/theprestige/textonly.html> (last visited Sept. 14, 2008). While the rivalry between the two magicians dominates the film, the film also explores the real-life rivalry between Thomas Alva Edison and Nikola Tesla. See THE PRESTIGE, *supra* note 140.

142. TRINKAUS, *supra* note 82, at 1.

143. See U.S. CONST. art. I, § 8, cl. 8 ("securing for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries"). The patent term is 20 years from the date on which the application was filed. 35 U.S.C. § 154(a)(2) (2000 & Supp. 2003).

144. 35 U.S.C. § 154(a)(1) (granting a patentee 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"). A patent is a "negative" right to the extent that the patentee may exclude others from practicing the patentee's invention, but this does not give the patentee a right to practice its own invention because by doing so the patentee might be infringing another's patent.

145. 35 U.S.C. § 271(a) (2000 & Supp. 2004) ("Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefore, infringes the patent."). Commentators debate whether there may ever be extraterritorial enforcement of intellectual property laws under Article I, Section 8, Clause 8 of the United States Constitution.

A defendant might also be found liable for “indirect” infringement,¹⁴⁶ such as by “inducement of infringement”¹⁴⁷ or by “contributory infringement.”¹⁴⁸ Without direct infringement, there can be no inducing or contributing to an infringement.¹⁴⁹ In other words, both theories of indirect infringement depend on a preliminary finding of direct infringement, so that a defendant is not liable for active inducement of infringement or contributory infringement without the existence of direct infringement.¹⁵⁰ The plaintiff need only prove patent infringement by a preponderance of the evidence.¹⁵¹

The first step in any infringement analysis is to interpret the scope of the patent claims that are alleged to have been infringed. Pursuant to the patent statute, claims appear at the end of the patent and shall particularly point out what exactly the applicant regards as his or her invention.¹⁵² Closely analogous to the metes and bounds of a deed of real property, a claim in a patent sets forth the right to exclude others from trespassing on the protected invention by providing the surveying stakes of what features (called either elements or limitations) make up the invention.¹⁵³

To ascertain the meaning of claims, courts look to three primary sources: the claims of the patent, the specification of the patent (e.g., its figures and text), and the correspondence between the patent applicant and the

See generally John W. Osborne, *A Rational Analytical Boundary for Determination of Infringement by Extraterritorially-Distributed Systems*, 46 IDEA 587 (2006).

146. *See* DSU Med. Corp. v. JMS Co., 471 F.3d 1293, 1303 (Fed. Cir. 2006) (citing *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1272 (Fed. Cir. 2004); *Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993)).

147. 35 U.S.C. § 271(b) (“Whoever actively induces infringement of a patent shall be liable as an infringer.”).

148. 35 U.S.C. § 271(c) (“Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.”).

149. *DSU*, 471 F.3d at 1303 (“[T]he patentee always has the burden to show direct infringement for each instance of indirect infringement.”); *see also* *Microsoft Corp. v. AT&T Corp.*, 127 S. Ct. 1746, 1751-52, 1751 n.2 (2007).

150. *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1372 (Fed. Cir. 2006); *Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d 1418, 1423 n.5 (Fed. Cir. 1994); *Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993).

151. *Warner-Lambert Co. v. Teva Pharms. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005). Direct and indirect infringement may be proven by circumstantial evidence. *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1219 (Fed. Cir. 2006); *Golden Blount*, 438 F.3d at 1362.

152. *Microprocessor Enhancement Corp. v. Tex. Instruments Inc.*, 520 F.3d 1367, 1374 (Fed. Cir. 2008).

153. *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999).

Patent Office during the examination process (called the prosecution history) that ultimately led to the issuance of a patent.¹⁵⁴ These sources are collectively referred to as “intrinsic” evidence, because they are publicly available at the Patent Office for competitors and the public to examine for helpful clues of what is covered by the patent. The Federal Circuit has established several guideposts that courts should follow when construing claims. The starting point of claim construction is always the claim language itself.¹⁵⁵ The specification may act as a sort of dictionary, which explains the invention and may define terms used in the claims.¹⁵⁶ The prosecution history also plays an important role in claim interpretation if it demonstrates how the inventor and the PTO understood the scope of the claims and the terms used in the claims.¹⁵⁷

In addition to the intrinsic evidence, courts may on occasion consider extrinsic evidence for a background understanding of the technology at issue. Extrinsic evidence consists of any evidence external to the records on file in the Patent Office relating to the patent, such as technical articles, dictionaries, inventor testimony, and expert testimony.¹⁵⁸ Extrinsic evidence cannot be used to construe the claims unless analysis of the intrinsic evidence leaves the disputed claim term unclear, and even then, it cannot be used to arrive at a definition of the claimed invention that contradicts the intrinsic evidence.¹⁵⁹

While claim construction is a matter of law, infringement is a question of fact,¹⁶⁰ although factual questions of infringement are frequently resolved by a court’s construction of the claims because “to decide what the claims mean is nearly always to decide the case.”¹⁶¹ Yet, any differences between

154. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13, 1317-20 (Fed. Cir. 2005) (en banc); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995).

155. *See Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1275 (Fed. Cir. 2008); *Phillips*, 415 F.3d at 1314; *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998).

156. *Caremark Commc’ns*, 156 F.3d at 1186.

157. *Phillips*, 415 F.3d at 1317.

158. *N. Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1295-96 (Fed. Cir. 2000); *Vitronics*, 90 F.3d at 1584.

159. *Vitronics*, 90 F.3d at 1584.

160. *PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) (“[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact.”).

161. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 989 (Fed. Cir. 1995) (Mayer, J., concurring); *see also Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1476 (Fed. Cir. 1998) (“On occasion the issue of literal infringement may be resolved with the step of claim construction, for upon correct claim construction it may be apparent whether the accused device is within the claims.”). But not every infringement question can be resolved by claim interpretation, especially when there

the claim construction and the accused product might seem subtle to the casual observer. Moreover, as the uncertainties increase, the patentee may be more likely to enforce the patent and the defendant may be more likely to settle than risk a protracted litigation over a possibly invalid patent, because the costs of pursuing a patent infringement claim are marginal in comparison to the costs of defending one.

There are two different methods of proving direct and indirect infringement. For literal infringement, every feature of a claim is required to be present in the accused product “exactly” as it is set forth in the claim.¹⁶² In patent parlance, a claim feature is sometimes called an “element” and often called a “limitation” of the claim.¹⁶³ Any deviation from the claim (e.g., the accused product is missing a feature recited in the asserted claim) precludes a finding of literal infringement.¹⁶⁴

For instance, imagine a patent claim that recited the features of a lettuce, tomato, and cheddar cheese sandwich. Thus, lettuce, tomato, and cheddar cheese are requirements that must be present in the allegedly infringing sandwich. If the accused sandwich omitted cheese entirely, then there would be no literal infringement since this feature is completely missing. If the accused sandwich substituted Swiss cheese, then again there would be no literal infringement, because the claim calls for cheddar cheese. As discussed next, a defendant who evades literal infringement may nonetheless be found to infringe when the defendant simply made an insubstantial change to the accused sandwich vis-à-vis the asserted claim requirements, such as by merely substituting American Cheddar with vegetarian cheddar or by omitting the ingredient that gives cheddar its orange color.¹⁶⁵

When there is no literal infringement, infringement can only be found under the doctrine of equivalents, which is an objective inquiry applied to

is a dispute over whether the structure and function of the accused product meets the claim construction. *Int'l Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1374-75 (Fed. Cir. 2004); *see also PPG Indus.*, 156 F.3d at 1354-55.

162. *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1331 (Fed. Cir. 2001) (“Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, i.e., when ‘the properly construed claim reads on the accused device exactly.’” (quoting *Amhil Enters. Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996))).

163. *Dawn Equip. Co. v. Ky. Farms, Inc.*, 140 F.3d 1009, 1014 n.1 (Fed. Cir. 1994) (“The statute refers to a claim ‘element,’ but this court has moved towards the custom of referring to claim ‘limitations,’ reserving the word ‘elements’ for describing the parts of the accused device, though the court on occasion continues to use the words interchangeably.”).

164. *Lantech, Inc. v. Keip Mach. Co.*, 32 F.3d 542, 547 (Fed. Cir. 1994).

165. *See Cheddar*, 3 THE NEW ENCYCLOPAEDIA BRITANNICA 146-47 (2007) (the status of cheddar cheese is open to interpretation based on the ingredients used and the process of manufacture according to the country of origin); 19 THE NEW ENCYCLOPAEDIA BRITANNICA 392-94 (2007) (discussing classifications of cheese based on enumerated criteria).

individual elements or limitations of the claim, not to the invention as a whole.¹⁶⁶ “Whether an element of the accused device is equivalent to a claim limitation depends on whether the substitute element” performs substantially the same function, in substantially the same way, and achieves substantially the same result as the claim limitation.¹⁶⁷ The jury will be asked to return a verdict of infringement if any difference between a claim limitation and the accused product is insubstantial, such as when persons of ordinary skill in the art would consider that element of the product to be interchangeable with the limitation.¹⁶⁸

The doctrine of equivalents is the “exception, however, not the rule,” or else the public will come to believe that it cannot rely on the language of patent claims.¹⁶⁹ Unlike in golf, there are no mulligans that allow the patentee to say one thing to the Patent Office in order to receive the patent (e.g., by amending the claims or arguing what the claimed invention covered or did not), but then to disavow what was said when suing the defendant. The patentee is prevented by prosecution history estoppel¹⁷⁰ from relying on the doctrine of equivalents when the patentee relinquished subject matter during the prosecution “by amendment or argument.”¹⁷¹ Another long-accepted principle of patent law is the “all elements rule,”¹⁷² which says that all of the elements (e.g., limitations, features) of the claim must be present in the accused product. Under the all elements rule, there can be no infringement under the doctrine of equivalents if even one claim element is missing from the accused product and is not replaced with an equivalent substitute.¹⁷³ The

166. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997).

167. Tronzo v. Biomet, Inc., 156 F.3d 1154, 1160 (Fed. Cir. 1998) (internal quotation marks omitted).

168. Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480-81 (Fed. Cir. 1998).

169. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991); see also Markman v. Westview Instruments, Inc., 517 U.S. 370, 390 (1996); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).

170. Int'l Rectifier Corp. v. IXYS Corp., 515 F.3d 1353, 1358 (Fed. Cir. 2008).

171. DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1332 (Fed. Cir. 2001); see also Seachange Int'l, Inc. v. C-COR Inc., 413 F.3d 1361, 1378 (Fed. Cir. 2005).

172. Miken Composites, L.L.C. v. Wilson Sporting Goods Co., 515 F.3d 1331, 1339-40 (Fed. Cir. 2008); Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 172 F.3d 1361, 1367-71 (Fed. Cir. 1999), *vacated*, 535 U.S. 722 (2002).

173. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997); *Seachange Int'l*, 413 F.3d at 1378; *DeMarini Sports*, 239 F.3d at 1332; Gen. Elec. Co. v. Nintendo Co., 179 F.3d 1350, 1363 (Fed. Cir. 1999); Tronzo v. Biomet, Inc., 156 F.3d 1154, 1160 (Fed. Cir. 1998) (“If a theory of equivalence would vitiate a claim limitation, however, then there can be no infringement under the doctrine of equivalents as a matter of law.”); Zygo Corp. v. Wyko Corp., 79 F.3d 1563, 1568 (Fed. Cir. 1996); Dolly, Inc. v. Spalding & Evenflo Cos., 16 F.3d 394, 397 (Fed. Cir. 1994); Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 935 (Fed. Cir. 1987) (en banc).

application of prosecution history estoppel and the all elements rule is a question of law.¹⁷⁴

Moreover, when a claim amendment is an amendment related to patentability, there arises a presumption of estoppel against the doctrine of equivalents, which may only be overcome in a few “narrow ways.”¹⁷⁵ The burden of rebutting the presumption lies with the patentee and is a question of law for the court.¹⁷⁶ First, the patentee may attempt to show that the equivalent was unforeseeable as of the date of the claim amendment.¹⁷⁷ Under this first criterion, the patentee generally tries to show that allegedly invalidating technology was “after-arising.”¹⁷⁸ Second, the patentee may demonstrate that the amendment was merely tangential to the alleged equivalent.¹⁷⁹ If the prior art that the patentee sought to overcome contained the alleged equivalent, then the amendment was not merely tangential.¹⁸⁰ Third, the patentee might establish another reason why it could not have reasonably been expected to have described the alleged equivalent at the time of the amendment.¹⁸¹ The Federal Circuit has suggested that “the third criterion may be satisfied when there was some reason, such as the shortcomings of language, why the patentee was prevented from describing the alleged equivalent when it narrowed the claim.”¹⁸²

Whether under literal infringement or the doctrine of equivalents, if the independent claims are not infringed, then any claims that depend from those independent claims also are not infringed.¹⁸³ The reason for this is that independent claims are broader than dependent claims, so independent claims cast the widest net. If that net does not ensnare the accused product, then neither

174. *Seachange Int'l*, 413 F.3d at 1378.

175. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1310 (Fed. Cir. 2006) (citing *Festo*, 535 U.S. at 740-41).

176. *Id.* at 1312; see also *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1371-72 (Fed. Cir. 2003) (en banc) (offering some guidance as to what must be shown in rebutting the *Festo* presumption under the three showings enumerated by the Supreme Court).

177. *Amgen*, 457 F.3d at 1310.

178. *Id.* at 1313 (But that “if the alleged equivalent were known in the prior art in the field of the invention, it certainly should have been foreseeable at the time of the amendment.”).

179. *Id.* at 1310.

180. *Id.* at 1313.

181. *Id.* at 1310-11.

182. *Id.* at 1313 (quoting *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1370 (Fed. Cir. 2003)).

183. *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 1383 (Fed. Cir. 2000); *Wolverine World Wide, Inc. v. Nike, Inc.*, 38 F.3d 1192, 1199 (Fed. Cir. 1994); *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9, 1553 (Fed. Cir. 1989).

will a narrower net.¹⁸⁴ However, the accused product may not avoid infringement by including additional features and components.¹⁸⁵ In the cheddar cheese sandwich hypothetical, the defendant cannot avoid infringement by adding ham to the lettuce, tomato, and cheddar cheese sandwich, since the claim requirements are present regardless of how many other ingredients are included.

The Patent Act also provides a “remedy by civil action for infringement” of a patent.¹⁸⁶ Accordingly, the discussion turns to equitable relief, followed by an analysis of damages, beginning with the early history of lost profits and reasonable royalties.

B. Injunctive Relief

Until 2006, the general rule¹⁸⁷ in patent cases was that an injunction would necessarily follow a finding of infringement.¹⁸⁸ The landscape changed dramatically that year.¹⁸⁹

The Patent Act authorizes an injunction as one of the remedies for infringement of a patent.¹⁹⁰ The decision of whether an injunction should issue

184. The technical explanation is that a claim written in dependent form incorporates by reference all the limitations of the claim from which it depends. 35 U.S.C. § 112 (2000). If the accused product does not include all of the limitations of the independent claim (e.g., lettuce, tomato, and/or cheddar cheese), then those limitations are likewise missing from a dependent claim that added ham, which dependent claim would now require lettuce, tomato, cheddar cheese, and ham to be present in the accused sandwich in order to be infringed.

185. *Suntiger, Inc. v. Scientific Research Group*, 189 F.3d 1327, 1336 (Fed. Cir. 1999) (“It is fundamental that one cannot avoid infringement merely by adding elements if each element recited in the claims is found in the accused device.” (quoting *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1178 (Fed. Cir. 1991))); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 811 (Fed. Cir. 1999) (“[I]nfringement is not avoided by the presence of elements or steps in addition to those specifically recited in the claim.”).

186. 35 U.S.C. § 281 (2000).

187. *See Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 811 (Fed. Cir. 2007) (Previously, it had been the “general rule in patent cases that an injunction will issue, once infringement and validity have been adjudged unless there are some exceptional circumstances that justify denying injunctive relief.” (internal brackets and ellipsis omitted)).

188. *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1379 (Fed. Cir. 2008) (“An injunction does not necessarily follow a determination that a patent has been infringed.”).

189. *See Mitchell G. Stockwell, Implementing eBay: New Problems in Guiding Judicial Discretion and Enforcing Patent Rights*, 88 J. PAT. & TRADEMARK OFF. SOC’Y 747, 760 (2006).

190. 35 U.S.C. § 283 (2000) (“The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to

belongs to the district court.¹⁹¹ Except for the prerequisite of proper claim construction,¹⁹² the traditional rules of equity apply to a request for injunctive relief in patent cases. Consequently, the district court should evaluate the request using the traditional four-factor test for injunctive relief: (1) irreparable harm to the patent owner in the absence of an injunction; (2) that monetary damages are inadequate; (3) balance of hardship to the parties; and (4) the public interest in granting an injunction.¹⁹³ For instance, an award of reasonable royalties based on future sales would cut against an injunction,¹⁹⁴ because such an award means that monetary damages are adequate, thereby failing the second factor of the four-factor test. Moreover, Justice Kennedy, with whom Justices Stevens, Souter, and Breyer joined, authored a concurring opinion in the 2006 *eBay* decision that reveals some cynicism toward the misuse of injunctions in certain patent cases:

In cases now arising trial courts should bear in mind that in many instances the nature of the patent being enforced and the economic function of the patent holder present considerations quite unlike earlier cases. An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees. For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent. When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.¹⁹⁵

Before the Supreme Court's decision in *eBay*, an injunction in patent cases nearly automatically followed from a finding of infringement absent

prevent the violation of any right secured by patent, on such terms as the court deems reasonable.”).

191. *Acumed*, 483 F.3d at 811.

192. *Chamberlain Group, Inc. v. Lear Corp.*, 516 F.3d 1331, 1340 (Fed. Cir. 2008).

193. *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1359 (Fed. Cir. 2008) (citing *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006)); *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1302 (Fed. Cir. 2007); *see also Erico Int'l Corp. v. Vutec Corp.*, 516 F.3d 1350, 1357 (Fed. Cir. 2008) (Newman, J., dissenting) (“The standard for a preliminary injunction is essentially the same as for a permanent injunction with the exception that the plaintiff must show a likelihood of success on the merits rather than actual success.” (quoting *Amoco Prod. Co. v. Village of Gambell*, 480 U.S. 531 (1987))).

194. *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1380 (Fed. Cir. 2008).

195. *eBay Inc.*, 547 U.S. at 396-97 (Kennedy, J., concurring) (citations omitted).

exceptional circumstances,¹⁹⁶ because it was assumed that damages would not adequately compensate a plaintiff for future trespass. Therefore, *eBay* made sweeping changes to the dynamics of equitable relief in patent infringement cases, which changes ushered in a greater importance on monetary damages – the next topic. Accordingly, the damages remedies for patent infringement will now be considered.

C. Damages

You're sure to win the trial. You've proved infringement in spades. The trier of fact must return a verdict in your client's favor and find that the defendant is infringing the asserted patent. Now what? It is time for damages. An analysis of whether a claim for patent infringement, once proven, gives rise to a lost profit or reasonable royalty theory of damages begins with the language and history of the Patent Act.¹⁹⁷

1. Statutory History

In contrast to lost profits, damages trace their roots to April 10, 1790, when President George Washington signed into law a bill that would provide the framework of what would become the American patent system.¹⁹⁸ The first patent statute provided that a defendant could be required to “forfeit and pay to the said patentee . . . such damages as shall be assessed by a jury.”¹⁹⁹ This statute was repealed by the 1793 statute,²⁰⁰ which gave rise to the notion of awarding a plaintiff damages based on an established royalty: “[The infringer] shall forfeit and pay to the patentee, a sum . . . equal to three times the price, for which the patentee has *usually* sold or licensed to other persons, the use of said invention.”²⁰¹ Proving an established royalty rate was sometimes difficult. It required evidence (prior to the infringement) of licenses with a sufficient “number of persons as to indicate a general acquiescence in its reasonableness.”²⁰² Thus, an established royalty as the sole measure of damages might leave the patentee without monetary relief for patent in-

196. *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed. Cir. 2005), *vacated*, 547 U.S. 388 (2006).

197. See P. J. Federico, *Commentary on the New Patent Act*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 161, 163-70 (1993) (Pasquale J. Federico was the primary author of the Patent Act of 1952 and, at that time, the Examiner-in-Chief of the United States Patent Office. He provided an overview of the various patent statutes since 1790.).

198. Act of Apr. 10, 1790, ch. 7, 1 Stat. 109 (1790) (repealed 1793).

199. *Id.* at 111.

200. Act of Feb. 21, 1793, ch. 11, 1 Stat. 318 (1793) (repealed 1836).

201. *Id.* at 322 (emphasis added).

202. *Rude v. Wescott*, 130 U.S. 152, 165 (1889).

fringement, until the law was changed to allow for recovery of patentee's lost profits or, at a minimum, a reasonable royalty.

Lost profits and reasonable royalties have slightly different origins. Current law on these theories of damages for patent infringement traces its history to 1870.²⁰³ Prior to the Patent Act of 1870, "patentees could seek damages in a suit at law or the infringer's profits in a suit in equity."²⁰⁴ The Patent Act of 1870 allowed a court of equity to hand out injunctive relief,²⁰⁵ the infringer's profits, and damages to the extent they exceeded those profits, while an action at law was limited to damages.²⁰⁶

From 1874 until the Patent Act of 1952, Congress passed over sixty acts relating to patents,²⁰⁷ which amended various sections – including a new revision that allowed a patentee to recover reasonable royalties. In 1922, Congress passed an Act to Increase the Force and Salaries in the Patent Office, and for Other Purposes.²⁰⁸ According to Section 8 of the 1922 Act, if the plaintiff's "damages or profits are not susceptible of calculation and determination with reasonable certainty, the court may . . . adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or general damages for the infringement."²⁰⁹ In 1946, Congress expressly provided for "reasonable royalties."²¹⁰ According to the 1946 Act, "upon a judgment being rendered in any case for an infringement the complainant shall be entitled to recover general damages which shall be due compensation for making, using, or selling the invention, not less than a reasonable royalty therefor."²¹¹

The Patent Act of 1952,²¹² for the first time since the Act of 1870, completely rewrote the patent statutes.²¹³ Section 284 of the Patent Act of 1952 expressly provides for reasonable royalties:

203. Act of July 8, 1870, ch. 230, 16 Stat. 198 (1870) (repealed in 1952).

204. Bensen & White, *supra* note 23, at 13, 14 n.41.

205. *Id.* at 13-14 & nn.41-42.

206. *Id.* at 13-14 & n.42.

207. Federico, *supra* note 197, at 166.

208. Act of Feb. 18, 1922, ch. 58, 42 Stat. 389 (1922).

209. *Id.* § 8, at 392 (amending section 4921 of the Revised Statutes).

210. Act of Aug. 1, 1946, ch. 726, 60 Stat. 778 (1946) (amending section 4921 of the Revised Statutes, 35 U.S.C. § 70).

211. *Id.* at 778.

212. Act of July 19, 1952, ch. 950, 66 Stat. 792 (1952) (codified as amended at 35 U.S.C. § 1 (2000)). The Patent Act of 1952 is the current patent statute. It has been amended from time to time and is the subject of the Patent Reform Act of 2007 that, if signed into law, would bring the most sweeping changes to patent law since 1952. *See* H.R. 1908, 110th Cong. (2007); S. 1145, 110th Cong. (2007). The House passed H.R. 1908, as amended, and on January 24, 2008, the Senate Report, S. REP. NO. 110-259 (2008), was issued to accompany S. 1145.

213. Federico, *supra* note 197, at 163.

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court. . . . The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.²¹⁴

There may be cases when a plaintiff's measure of damages is based on the profits it lost due to the defendant's sales, and other times when the measure is a reasonable royalty.²¹⁵ Still, there may be times when the plaintiff seeks lost profits on some of the accused products sold by defendant, and seeks reasonable royalties on others.²¹⁶ Lost profits and reasonable royalties are discussed next.

2. Lost Profits

Economists view lost profits as a means of compensating the plaintiff for profits on sales that went to the defendant.²¹⁷ Traditionally, this meant that the plaintiff had to be selling a patented device,²¹⁸ but that is no longer the case²¹⁹ so long as the plaintiff is selling some product in competition with the defendant.²²⁰ For instance, in *Rite-Hite Corp. v. Kelley Co.*,²²¹ the Federal

214. 35 U.S.C. § 284 (2000) (damages).

215. See generally *Dow Chem. Co. v. Mee Indus., Inc.*, 341 F.3d 1370, 1381-82 (Fed. Cir. 2003); *Integra Lifesciences I, Ltd. v. Merck KGaA*, 331 F.3d 860, 870 (Fed. Cir. 2003); *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1108-09 (Fed. Cir. 1996); *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1545-46 (Fed. Cir. 1995) (en banc).

216. *Minco, Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1119-20 (Fed. Cir. 1996).

217. Hausman, Leonard & Sidak, *supra* note 1, at 833.

218. *Rite-Hite*, 56 F.3d at 1545 (holding "that the general rule for determining actual damages to a patentee that is itself producing the patented item is to determine the sales and profits lost to the patentee because of the infringement").

219. *Wechsler v. Macke Int'l Trade, Inc.*, 486 F.3d 1286, 1293 (Fed. Cir. 2007) ("Normally, if the patentee is not selling a product, by definition there can be no lost profits. The only exception is where the patentee has the ability to manufacture and market a product, but for some legitimate reason does not. Even in these situations, though, the burden on a patentee who has not begun to manufacture the patented product is commensurately heavy." (citation and internal quotations omitted)).

220. *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1311 (Fed. Cir. 2004) ("However, the patentee needs to have been selling some item, the profits of which have been lost due to infringing sales, in order to claim damages consisting of lost profits.").

221. 56 F.3d 1538 (Fed. Cir. 1995).

Circuit affirmed the award to Rite-Hite for lost profits relating to two types of vehicle restraints: MDL-55 that incorporated the patented invention; and ADL-100 even though it was not covered by the asserted patented.²²² Relying on tort law, the Federal Circuit agreed that Rite-Hite's lost sales of the ADL-100, a product that directly competed with the infringing product, were reasonably foreseeable.²²³

In practice, the court determines as a question of law whether a plaintiff may be awarded lost profits, and then the jury decides on an amount, if any.²²⁴ To recover lost profits, the plaintiff must prove a causal relation between the infringement and plaintiff's alleged lost profits. In other words, the plaintiff must show that "but for" the infringement, sales that went to the defendant would have gone to the plaintiff.²²⁵ This may sound like tort law, and indeed, the general rules of joint and several liability apply in patent cases.²²⁶

As with tort law, a "reasonable probability" is required. The plaintiff must establish a "reasonable probability that, 'but for' the infringement, it would have made the sales that were made by the infringer."²²⁷ Toward this goal, the Federal Circuit adopted²²⁸ a four-factor test first articulated by the Sixth Circuit in *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*,²²⁹ to prove entitlement to lost profits damages. The *Panduit* test requires that a patentee establish: (1) demand for the patented product; (2) absence of acceptable non-infringing substitutes on the market;²³⁰ (3) plaintiff's manufacturing and marketing capacity to exploit the demand; and (4) the amount of profit plaintiff would have made from defendant's sales.²³¹ This four-factor test is intended to guide a court, but is not necessarily determinative.²³²

222. *Id.* at 1543.

223. *Id.* at 1546-49.

224. *Mitutoyo Corp. v. Cent. Purchasing, LLC*, 499 F.3d 1284, 1291 (Fed. Cir. 2007) (noting that the availability of lost profits is a question of law for the court); *Wechsler*, 486 F.3d at 1293 ("Only after the court has decided, as a matter of law, that lost profits are available does the jury then get to determine the amount of those lost profits." (citing *Ericsson, Inc. v. Harris Corp.*, 353 F.3d 1369, 1373 (Fed. Cir. 2003))).

225. *Am. Seating Co. v. USSC Group, Inc.*, 514 F.3d 1262, 1268 (Fed. Cir. 2008) (citing *BIC Leisure Prods. v. Windsurfing Int'l*, 1 F.3d 1214, 1218 (Fed. Cir. 1993)).

226. *Genayre Elecs., Inc. v. Jackson*, 443 F.3d 851, 872 (Fed. Cir. 2006).

227. *Rite-Hite*, 56 F.3d at 1545.

228. *Id.* ("A showing under *Panduit* permits a court to reasonably infer that the lost profits claimed were in fact caused by the infringing sales, thus establishing a patentee's *prima facie* case with respect to 'but for' causation.").

229. 575 F.2d 1152, 1156 (6th Cir. 1978).

230. For a discussion of this second *Panduit* factor, see generally Hausman, Leonard & Sidak, *supra* note 1.

231. *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1371-72 (Fed. Cir. 2006) (citing *Panduit*, 575 F.2d at 1156).

232. *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1580 (Fed. Cir. 1996) ("In other words, *Panduit* supplied one method of proving damages. *Panduit* is not the exclusive test for proving damages."); *Comair Rotron, Inc. v. Nippon Densan Corp.*, 49

The first *Panduit* factor – demand for the patented product – generally requires a showing that the accused and patented products are reasonably interchangeable.²³³ In many instances, the plaintiff might prove “demand” by using sales figures to show that the commercial use of the parties’ respective products increased during the infringement period.²³⁴ Since sales increased for both parties during the infringement period, the plaintiff’s product was covered by its patent, and the defendant’s product was found to be infringing, a reasonable jury could conclude that the increase in sales was due to a demand for the plaintiff’s patented features. Also, a plaintiff might show the “benefits”²³⁵ of the patented feature over other products on the market. A defendant might argue that there is no overlap among the consumers, such as by demonstrating that plaintiff’s products are “entirely outside the price range” in which the defendant’s customers are likely to buy.²³⁶ Additionally, the defendant may attempt to show that some of the increased demand would necessarily be met by competing noninfringing products,²³⁷ the next factor.

The second *Panduit* factor – absence of acceptable, noninfringing alternatives – also presupposes that the parties compete for the same or similar customers.²³⁸ Determining whether an alternative was both “noninfringing” and “acceptable” are questions for the trier of fact.²³⁹ In principle, an economist may assume the absence of the infringing product, such as by an economic model that increases the price until the demand is zero. In the absence

F.3d 1535, 1540 (Fed. Cir. 1995) (Rader, J., concurring) (“The *Panduit* test itself is merely ‘an acceptable, though *not an exclusive*’ test for determining ‘but for’ causation as to lost profits. This court acknowledges alternative methods of proving damages.” (citations omitted)).

233. *Comair Rotron*, 49 F.3d at 1540 (Rader, J., concurring).

234. *See* *Micro Chem., Inc. v. Lextron, Inc.*, 318 F.3d 1119, 1123 (Fed. Cir. 2003); *see also* *Golden Blount*, 438 F.3d at 1371-72.

235. *Micro Chem.*, 318 F.3d at 1123; *see also* *Ferguson Beauregard/Logic Controls, Div. of Dover Res., Inc. v. Mega Sys., LLC*, 350 F.3d 1327, 1346 (Fed. Cir. 2003); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1578-79 (Fed. Cir. 1989).

236. *Mitutoyo Corp. v. Cent. Purchasing, LLC*, 499 F.3d 1284, 1291 (Fed. Cir. 2007).

237. Jerry A. Hausman & Gregory K. Leonard, *Competitive Analysis Using a Flexible Demand Specification*, 1 J. COMPETITION L. & ECON. 279, 299 (2005) (arguing that an economist could model a market whereby the price of the defendant’s product is increased until its demand reduces to zero).

238. *Comair Rotron*, 49 F.3d at 1541 (Rader, J., concurring) (“However, if the products do not compete in the same market niche, the second *Panduit* factor will also frustrate the ‘but for’ test for causation.”).

239. *Wechsler v. Macke Int’l Trade, Inc.*, 486 F.3d 1286, 1298 (Fed. Cir. 2007) (Mayer, J., dissenting) (“The burden then falls on the infringer to prove availability, and the fact-finder ‘must proceed with caution’ in assessing such proof.” (quoting *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1353 (Fed. Cir. 1999))).

of the infringing product, the question is simplified: How much demand of the infringing product would shift to the plaintiff's product as opposed to the noninfringing product?²⁴⁰ Setting the demand to zero for the infringing product is the same as making the patented technology unavailable to the infringer, and the economist determines how many of the defendant's customers would choose the defendant's non-infringing model without the plaintiff's patented feature. The difference is the share of sales that are attributable to the plaintiff's invention and used in the calculation of lost profits. In order to offset plaintiff's economic model, a defendant might argue that "technology not on the market at the time of infringement can, in certain circumstances, constitute an available, noninfringing alternative" in a remarkably short period of time.²⁴¹

The Federal Circuit recognizes a "two-supplier" market test for showing "but for" causation. In essence, this test collapses *Panduit's* first two factors into one factor when there is sufficient evidence to show that a "relevant market contains only two suppliers."²⁴² The two-supplier test assumes, in a case when "the patent owner has the manufacturing and marketing capabilities, that it would have made the infringer's sales."²⁴³ Therefore, the first step is to define the relevant market, and then the market shares.²⁴⁴ If sufficiently great, a plaintiff's market share might provide evidence of a two-supplier market.²⁴⁵

240. Hausman, Leonard & Sidak, *supra* note 1, at 834.

241. *Micro Chem., Inc. v. Lextron, Inc.*, 318 F.3d 1119, 1122 (Fed. Cir. 2003) (An infringer's proof that it had all the necessary equipment, know-how, and experience to make a non-infringing substitution does not necessarily show that the later-in-time product was "available" at the time of the infringement when there was a high cost associated with the substitute and the infringer had to design around the patented features in order to develop an alleged noninfringing alternative. (citing *Grain Processing Corp.*, 185 F.3d at 1351-52)); *see also Wechsler*, 486 F.3d at 1298 (Mayer, J., dissenting) (same).

242. *Micro Chem.*, 318 F.3d at 1124 ("Thus, under the two-supplier test, a patentee must show: 1) the relevant market contains only two suppliers, 2) its own manufacturing and marketing capability to make the sales that were diverted to the infringer, and 3) the amount of profit it would have made from these diverted sales.").

243. *Id.*

244. *Id.* ("[T]o determine a patentee's market share, the record must accurately identify the market. This requires an analysis which excludes alternatives to the patented product with disparately different prices or significantly different characteristics." (quoting *Crystal Semiconductor Corp. v. TriTech Microelecs. Int'l, Inc.*, 246 F.3d 1336, 1356 (Fed. Cir. 2001))); *see also Grain Processing Corp.*, 185 F.3d at 1355.

245. *Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1370 (Fed. Cir. 2006) ("Golden Blount controlled 95% of the market, the district court found that there was a two-supplier market and that "but for" Peterson's infringing activities, Blount would have made the sales it normally would have made.").

The third *Panduit* factor – plaintiff’s capacity to meet the demand – usually comes down to simple manufacturing considerations, such as the ability to increase the output by adding a plant, by adding a work shift to an existing plant, or by adding a supplier.²⁴⁶ And if the patented feature is embodied in software, then plaintiff can easily show the ability to increase its output.

The fourth *Panduit* factor²⁴⁷ determines the profits a plaintiff would have made on lost sales. First, the plaintiff might argue loss of profits. Here, traditional accounting principles apply: revenues minus costs. Thus, lost profits are typically determined from the plaintiff’s cost data for existing sales, together with any increased costs (or decrease in costs) associated with meeting the additional demand. Under economies of scale, plaintiff’s profits might increase for each additional sale that went to the defendant. Second, the plaintiff may also seek projected lost sales if, for instance, its sales trend was increasing when the infringement period began, so long as the damages calculation is supported by sufficient sales history and not fraught with speculation.²⁴⁸ Third, the plaintiff may seek lost profits due to price erosion²⁴⁹ and “convoyed sales.”²⁵⁰ Under a convoy theory, the patentee seeks lost profits of both patented and unpatented but related products,²⁵¹ such as a patented

246. *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 276-77 (Fed. Cir. 1985) (“First, Yarway spent a great deal of time and money developing a market for the specific desuperheater covered by the ’592 patent. Yarway was aggressive in its business, both in the United States and abroad and, as evidenced by this lawsuit, was aggressive in protecting its market in these particular desuperheaters. Second, Yarway’s ability to meet market demand must be considered in light of the unique relationship of Eur-Control and Kalle . . . Yarway manufactures the desuperheaters whenever it is prudent; Kalle, also acting as a reasonable business entity, has filled Yarway’s needs, and received its bargained-for profit in return.”).

247. *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1545 (Fed. Cir. 1995) (en banc) (citing *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978)).

248. *Shockley v. Arcan, Inc.*, 248 F.3d 1349, 1362-64 (Fed. Cir. 2001).

249. *Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369, 1378-79 (Fed. Cir. 2003).

250. *Am. Seating Co. v. USSC Group, Inc.*, 514 F.3d 1262, 1268 (Fed. Cir. 2008) (“A ‘convoyed sale’ refers to the relationship between the sale of a patented product and a functionally associated non-patented product. A patentee may recover lost profits on unpatented components sold with a patented item, a convoyed sale, if both the patented and unpatented products ‘together were considered to be components of a single assembly or parts of a complete machine, or they together constituted a functional unit.’” (quoting *Rite-Hite*, 56 F.3d at 1550)).

251. *Id.* at 1268 (“A patentee may recover lost profits on unpatented components sold with a patented item, a convoyed sale, if both the patented and unpatented products ‘together were considered to be components of a single assembly or parts of a complete machine, or they together constituted a functional unit.’” (quoting *Rite-Hite*, 56 F.3d at 1550)); *Micro Chem., Inc. v. Lextron, Inc.*, 318 F.3d 1119, 1125-26 (Fed. Cir. 2003) (finding it “reasonably foreseeable that Micro would have made profits from microingredient sales earned by virtue of placing its patented microingredient

razor that might convoy sales of unpatented razor blades or a patented printer that might convoy sales of unpatented toner. Fourth, if the patented component is used in an assembled product, the plaintiff might recover lost profits based on sales of the finished product – not just sales of the component part – under a theory of the “entire market value.”²⁵²

When the plaintiff has established a prima facie case of the *Panduit* factors or a two-supplier market, the jury may infer that the lost profits were due to the infringing sales.²⁵³ The burden then shifts to the defendant to rebut the plaintiff’s case or to apportion those sales that are not due to the patented features.²⁵⁴ Once the burden shifts, it is too late for the defendant to complain that the plaintiff failed to provide it with sufficient evidence during discovery.²⁵⁵

Even if a plaintiff seeks lost profits on all of the defendant’s sales, the plaintiff might also consider measuring damages based on a reasonable royalty theory in case the jury finds the plaintiff failed to prove one of the *Panduit* factors. Established royalties and reasonable royalties are discussed below.

D. Established Royalties

An established royalty furnishes the most accurate measure of damages.²⁵⁶ When the plaintiff has consistently licensed others at a uniform

weigh machines on feedlots, a damage calculation based on lost microingredient sales”).

252. *Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GmbH*, 408 F.3d 1374, 1376, 1379-81 (Fed. Cir. 2005) (“The entire market value rule ‘permits recovery of damages based on the value of the entire apparatus containing several features, where the patent related feature is the basis for customer demand.’ This measure of damages arises ‘where both the patented and unpatented components together are ‘analogous to components of a single assembly,’ ‘parts of a complete machine,’ or ‘constitute a functional unit’ but not where the unpatented components ‘have essentially no functional relationship to the patented invention and . . . may have been sold with an infringing device only as a matter of convenience or business advantage.’” (omission in original) (citation omitted)); see also *Juicy Whip, Inc. v. Orange Bang, Inc.*, 382 F.3d 1367, 1371-72 (Fed. Cir. 2004); *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1361 (Fed. Cir. 2001); *Tec Air, Inc. v. Denso Mfg. Mich., Inc.*, 192 F.3d 1353, 1362 (Fed. Cir. 1999); *Rite-Hite*, 56 F.3d at 1549.

253. *Rite-Hite*, 56 F.3d at 1545.

254. *Id.*

255. *Pandrol USA, LP v. Airboss Ry. Prods., Inc.*, 320 F.3d 1354, 1369 (Fed. Cir. 2003) (“The defendants finally contend that the plaintiffs failed to respond sufficiently to their discovery requests regarding lost profits, and that the trial was, therefore, ‘fundamentally unfair.’ However, the defendants have not demonstrated, and the record does not indicate, that they filed a motion to compel discovery under Federal Rule of Civil Procedure 37. Absent such a showing, the defendants cannot complain of alleged discovery violations.” (citation omitted)).

256. *Monsanto Co. v. McFarling*, 488 F.3d 973, 978-79 (Fed. Cir. 2007).

royalty for conduct similar to the defendant's infringing activity, that royalty is the best indication of the terms upon which the plaintiff would have licensed the defendant.²⁵⁷ Therefore, an established royalty – when one exists – should be used, because it removes the guesswork of a hypothetical negotiation.²⁵⁸

There are many types of license agreements for intellectual property: a one-time lump sum payment; an annual fee with no royalty; an ongoing royalty based on sales; sales with a fixed amount guaranteed; or any combination of the above, to name a few. Additionally, a market approach may be used, which takes a consensus of what others in the marketplace have paid, and then compares those values to the particular product in question. The challenge, of course, is the determination of exactly what products (or categories of products) are comparable. Through discovery, a defendant should seek from the plaintiff any licensing agreements relating to the asserted patent, because ordinarily courts will consider other contracts entered by the plaintiff over the same patent as a proper method of assessing established royalties.²⁵⁹

Federal securities laws provide another source of established royalties. Publicly traded companies are required to disclose information on an ongoing basis, including annual reports on Form 10-K, in filings with the Securities & Exchange Commission ("SEC").²⁶⁰ The annual report on Form 10-K provides a comprehensive overview of the company's business and financial condition and includes audited financial statements. As a result, SEC filings are one source for corporate information on royalty rates that might otherwise be difficult to obtain. More particularly, royalty rates may be reported in SEC filings by either the licensor or licensee in the company's Form 10-K, and sometimes copies of the agreement may be attached to the Form 10-K.²⁶¹

257. *Id.* at 979.

258. *Id.* (citing *Rude v. Westcott*, 130 U.S. 152, 165 (1889)). *Rude* discussed this principle in more detail: "In order that a royalty may be accepted as a measure of damages against an infringer, who is a stranger to the license establishing it, it must be paid or secured before the infringement complained of; it must be paid by such a number of persons as to indicate a general acquiescence in its reasonableness by those who have occasion to use the invention; and it must be uniform at the places where the licenses are issued." 130 U.S. at 165.

259. FED. R. CIV. P. 26(b)(1) ("Parties may obtain discovery regarding any non-privileged matter that is relevant to any party's claim or defense . . . Relevant information need not be admissible at the trial if the discovery appears reasonably calculated to lead to the discovery of admissible evidence.").

260. *See* U.S. SEC. & EXCH. COMM'N, FORM 10-K, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934, at 1, <http://www.sec.gov/about/forms/form10-k.pdf> (last visited Sept. 14, 2008).

261. While SEC filings offer an idea of royalty rates, companies might only report significant license agreements as measured by the company's annual sales. Thus, a company with large annual sales generated outside of any licenses might not report its royalty rates.

Another means of obtaining established royalty rates is through consultants who have compiled royalty rates on an industry-by-industry basis.²⁶² Also, a literature search can provide some guidance relating to royalty rates.²⁶³

1. Reasonable Royalties

When an established royalty does not exist, a “reasonable royalty” is used.²⁶⁴ A reasonable royalty is the floor below which plaintiff’s damages may not fall: “[T]he court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty.”²⁶⁵ Expert testimony may inform the decision of what a reasonable royalty would be under the circumstances.²⁶⁶

A reasonable royalty assumes a hypothetical arm’s length negotiation²⁶⁷ between a willing buyer and willing seller at the time the alleged infringing activity began.²⁶⁸ Royalty metrics generally are not a single number. Rather, the metrics include a composite of the “rate” (a price per unit), a “base” (the definition of what constitutes a unit against which the rate is multiplied), and

262. See, e.g., Royalty Source, <http://www.royaltysource.com/> (last visited Sept. 14, 2008).

263. See, e.g., GREGORY J. BATTERSBY & CHARLES W. GRIMES, LICENSING ROYALTY RATES 23-102, 201-19 (2007) (discussing royalty rates survey of 2007 by product and trends in royalty rates); INTELLECTUAL PROP. RESEARCH ASSOCS., ROYALTY RATES FOR TECHNOLOGY 65-295 (3d ed. 2003) (discussing royalty rates by industry); Robert Goldscheider, John Jarosz & Carla Mulhern, *Use of the 25 Per Cent Rule in Valuing IP*, LES NOUVELLES, Dec. 2002, at 123.

264. *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1569 (Fed. Cir. 1996), *vacated*, 520 U.S. 1183 (1997).

265. 35 U.S.C. § 284 (2000). The “reasonable royalty” may be the “established royalty, if there is one.” *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1078 (Fed. Cir. 1983).

266. 35 U.S.C. § 284.

267. *Mitutoyo Corp. v. Cent. Purchasing, LLC*, 499 F.3d 1284, 1292 (Fed. Cir. 2007) (“[I]t [is] calculated based on a hypothetical negotiation between a willing patentee and a willing licensee at the time the infringement began.” (citing *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1554 (Fed. Cir. 1995) (en banc))).

268. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356, 1361 (Fed. Cir. 2006) (“We have held that a reasonable royalty determination for purposes of making a damages evaluation must relate to the time infringement occurred.”); *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1575 (Fed. Cir. 1988) (The hypothetical negotiations methodology “speaks of negotiations as of the time infringement began.”), *overruled on other grounds by Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004); *Hanson*, 718 F.2d at 1079 (“The key element in setting a reasonable royalty . . . is the necessity for return to the date when the infringement began.” (omission in original) (quoting *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158 (Fed. Cir. 1978))).

the life of the licensing agreement (generally, the term that is left on the patent before it expires), to name a few of the factors in the royalty metrics.²⁶⁹

Therefore, in a license negotiation, the first step selects the royalty base²⁷⁰ against which the rate will be calculated, and the second step selects the royalty rate, because “in a reasonable royalty determination, the royalty base and the royalty rate are inextricably linked.”²⁷¹ Is the royalty “based” on the price of the component part or the price of the completed end product? An example from a 2008 Supreme Court oral argument illustrates the difference. Justice Breyer asked whether a royalty for a patented bicycle pedal applies to the pedal itself or to the bicycle system that incorporates the pedal.²⁷² Whether the royalty is applied to the price of the pedal or the price of the bike produces a stark difference in damages in what the buyer would be paying in our hypothetical negotiation.²⁷³

The hypothetical royalty negotiations are not calculated “in a vacuum.”²⁷⁴ The analysis turns on “sound economic and factual predicates”²⁷⁵ without regard to the infringing activity being addressed: “To prevent the hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture.”²⁷⁶ The hypothetical negotiators may agree to a reasonable royalty that includes a “market entry fee,”²⁷⁷

269. There is an inverse relationship between the rate and base depending on whether the technology consists of a single stand alone device or a device integrated as a component part of a larger product. For example, in one of the largest patent damages awards on record, a plaintiff alleged that its Web browser patent was bundled with defendant’s Windows® operating system, which included the Internet Explorer® Web browser. *Eolas Techs. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir. 2005). The jury awarded a royalty rate of \$1.47 per unit of the operating system, which royalty base amounted to damages of \$520 million. *Id.* at 1332.

270. *Mitutoyo*, 499 F.3d at 1292.

271. Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307, 375 (2006).

272. John W. Osborne, *Justice Breyer’s Bicycle and the Ignored Elephant of Patent Exhaustion: An Avoidable Collision in Quanta v. LGE*, 7 J. MARSHALL REV. INTEL. PROP. L. 245, 247-48 (2008).

273. *See supra* note 252 (collecting cases interpreting the entire market value rule as a basis for determining the royalty base).

274. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356, 1361 (Fed. Cir. 2006).

275. *Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1311 (Fed. Cir. 2002).

276. *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1350 (Fed. Cir. 1999).

277. *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1380 (Fed. Cir. 2008). By charging a market entry fee, the patent owner recoups expenses associated with developing a market for its product, while the licensee benefits by entering an established market distribution network for distributing its goods in the shortest period of time.

cost savings the licensee would realize from using the patent,²⁷⁸ an “ongoing royalty payment”²⁷⁹ that extends to a date beyond a jury verdict, and that the royalty rate need not *ex post facto* guarantee a profit.²⁸⁰

To determine the amount of a reasonable royalty in such a hypothetical negotiation, courts often look to a list of fifteen evidentiary factors – the “*Georgia-Pacific*” factors²⁸¹ – that may inform the parties’ business decisions during actual license negotiations.²⁸² The district court is advised to consider these factors in detail.²⁸³

In 2008, the Federal Circuit Bar Association adopted Model Patent Jury Instructions.²⁸⁴ The efforts in creating this Model cannot be overstated, and appreciation is extended to the Jury Instruction Subcommittee that labored on this project as a model for courts.²⁸⁵ The jury instruction on reasonable royal-

278. *Monsanto Co. v. McFarling*, 488 F.3d 973, 980-81 (Fed. Cir. 2007); *Riles*, 298 F.3d at 1313; *Grain Processing*, 185 F.3d at 1347; *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1080 (Fed. Cir. 1983). The patent owner recovers part of the expenditure incurred in R&D, and the licensee receives the know-how to increase profits by lowering expenses through the patent owner’s more efficient process of producing the same product.

279. *Innogenetics*, 512 F.3d at 1380. *But see Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1313-16 (Fed. Cir. 2007) (holding that the denial of an injunction does not warrant ongoing royalties as a matter of course and remanding the matter of a reasonable ongoing royalty rate to the district court for explanation of the amount). In contrast to a payment in one lump sum, an ongoing royalty payment allows both parties to share the risks and benefits that future sales will increase or decrease. If sales increase more than expected, then the patent owner stands to gain more than it would have received as a lump sum. If sales decrease, then the licensee has reduced its losses by paying less than it would under a lump-sum arrangement.

280. *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1338 (Fed. Cir. 2004) (“There is no rule that a royalty be no higher than the infringer’s net profit margin.” (quoting *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580 (Fed. Cir. 1989))). In other words, both parties share the proceeds of exploiting the intellectual property during an appeal and in the absence of an injunction.

281. *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (The list of fifteen evidentiary factors were “drawn from a conspectus of the leading cases.”), *modified*, 446 F.2d 295 (2d Cir. 1971).

282. *See Parental Guide of Tex., Inc. v. Thomson, Inc.*, 446 F.3d 1265, 1270 (Fed. Cir. 2006) (“In addition, as both parties recognize, a ‘reasonable royalty’ rate under section 284 is calculated with reference to the long list of factors outlined in [*Georgia-Pacific*].”).

283. *See Dow Chem. Co. v. Mee Indus., Inc.*, 341 F.3d 1370, 1382 (Fed. Cir. 2003).

284. THE FED. CIRCUIT BAR ASS’N, MODEL PATENT JURY INSTRUCTIONS (2008); *see id.* at 70-71 (Instruction 6.7, reasonable royalty).

285. *See, e.g.*, SEVENTH CIRCUIT COURT OF APPEALS, PROPOSED PATTERN PATENT CIVIL JURY INSTRUCTIONS (2008), *available at* http://www.ca7.uscourts.gov/pattern_patent_civil_jury_instr.pdf (Instruction 4.4, reasonable royalty).

ty – to be read to the jury – is recited in full below to stress a point, because juries are often provided the *Georgia-Pacific* factors (without much guidance) and expected to determine (or divine, one might argue) the reasonable royalty.

2. Reasonable Royalty - Definition²⁸⁶

A royalty is a payment made to a patent holder in exchange for the right to make, use, or sell the claimed invention. A reasonable royalty is the amount of royalty payment that a patent holder and the infringer would have agreed to in a hypothetical negotiation taking place at the time when the infringing sales first began. In considering this hypothetical negotiation, you should focus on what the expectations of the patent holder and the infringer would have been had they entered into an agreement at that time, and had they acted reasonably in their negotiations. You must also assume that both parties believed the patent was valid and infringed. In addition, you must assume that patent holder and infringer were willing to enter into an agreement. Your role is to determine what that agreement would have been. The measure of damages is what royalty would have resulted from the hypothetical negotiation, and not simply what royalty either party would have preferred.

In this trial, you have heard evidence of things that happened after the infringing sales first began. That evidence can be considered only to the extent that that evidence aids in you assessing what royalty would have resulted from a hypothetical negotiation. Although evidence of the actual profits [alleged infringer] made may aid you in determining the anticipated profits at the time of the hypothetical negotiation, you may not limit or increase the royalty based on the actual profits [alleged infringer] made.

In determining the reasonable royalty, you should consider all the facts known and available to the parties at the time the infringement began. Some of the kinds of factors that you may consider in making your determination are:

(1) whether the patent holder had an established royalty for the invention; whether, in the absence of an established royalty, there is evidence that tends to prove an established royalty; whether, in the absence of such a licensing history, there are any royalty arrangements that were generally used and recognized in the particular industry at that time,^[287]

286. Bracketed interlineations are those of the author.

287. Factors 1 and 7 are often considered together by commentators. Existing licenses relating to technologies similar to the accused product may suggest a comparable rate during a hypothetical negotiation. Karen Vogel Weil & Brian C. Horne, *Establishing Reasonable Royalty Damages*, 910 PRACTISING L. INST. 1347, 1358 (2007) (citing *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 519 (Fed. Cir. 1995)).

(2) the nature of the commercial relationship between the patent holder and the licensee such as whether they were competitors or whether their relationship was that of an inventor and a promoter;^[288]

(3) the established profitability of the patented product, its commercial success and its popularity at the time;^[289]

(4) whether the patent holder had an established policy of granting licenses or retaining the patented invention as its exclusive right, or whether the patent holder had a policy of granting licenses under special conditions designed to preserve his monopoly;^[290]

(5) the size of the anticipated market for the invention at the time the infringement began;

(6) the duration of the patent and of the license, as well as the terms and scope of the license, such as whether it is exclusive or nonexclusive or subject to territorial restrictions;

(7) the rates paid by the licensee for the use of other patents comparable to the plaintiffs [sic] patent;

(8) whether the licensee's sales of the patented invention promote sales of its other products and whether the invention generates sales to the inventor of his nonpatented items;

(9) the utility and advantages of the patented property over the old modes or devices, if any, that had been used for working out similar results;^[291]

(10) the extent to which the infringer used the invention and any evidence probative of the value of such use;

(11) the portion of the profits in the particular business that is customarily attributable to the use of the invention or analogous inventions;

(12) the portion of the profits that should be credited to the invention as distinguished from nonpatented elements, the manufacturing process, business risks or significant features or improvements added by the infringer;

288. When a defendant is likely to take sales away from the plaintiff, then a plaintiff would demand a higher royalty rate during negotiations. *Id.* at 1359.

289. Factors 3, 5, and 8 are discussed together in the present article. A licensee is willing to pay a higher rate for a profitable product, for a large customer base/market, and when there is a chance for convoy sales.

290. Factors 4 and 6 are discussed together in the present article. A would-be licensee will pay more for an exclusive license, but less for non-exclusive or restricted licenses. The licensee would pay more for a recently issued patent, but less for a patent that is close to expiring.

291. Factors 9, 11, and 12 are often considered together by commentators. A licensee is willing to pay less when competitors (or the licensee itself) could design around the patent or offer a non-infringing alternative. Conversely, the licensee would pay more if the patent saves manufacturing costs or allows it to charge a higher price, thereby increasing net profits. Weil & Horne, *supra* note 287, at 1360. Also, an analytical argument is that the patented device has become a commodity, whereby competition is based on brand and no longer on patented technology.

(13) the opinion and testimony of qualified experts and of the patent holder;^[292] and

(14) any other factors which in your mind would have increased or decreased the royalty the infringer would have been willing to pay and the patent holder would have been willing to accept, acting as normally prudent business people.^[293]

No one factor is dispositive and you can and should consider the evidence that has been presented to you in this case on each of these factors. The final factor establishes the framework which you should use in determining a reasonable royalty, i.e., the payment that would have resulted from a negotiation between a patent holder and the infringer taking place at the time when the infringing sales first began.²⁹⁴

Through that dense instruction recited above, the jury is expected to arrive at a number that measures reasonable royalties. In discharging its responsibility to the fact finder, the court should consider the defense proposed below. Optionally, it may be grafted onto the *Georgia-Pacific* factors, but preferably it might supplant most of the factors that are not truly at issue. Either way, the proposed defense would prove more juror-friendly and understandable to the jurors by framing the instruction in terms of their everyday life experiences.

V. SIMULTANEOUS DISCOVERY AND INDEPENDENT DEVELOPMENT

The need for change in the way patent damages are measured has never been greater. Unreasonable posturing during licensing negotiation, based on overreaching in the courtroom and aggressive damage allegations out of touch with any contribution to science, have raised concerns that too often settlements are more about avoiding the cost and uncertainty of counterproductive patent litigation than they are the value of the licensed patents. Diverting money from R&D to nuisance settlements is an impermissible drag on businesses struggling to contend in an increasingly competitive global market. This has led critics to assail the measure of damages as stifling innovation, chilling research and development, and causing social harm to the free

292. Section 284 allows a court to “receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.” 35 U.S.C. § 284 (2000). Indeed, accountants, economists, industry experts, licensing experts, and marketing experts are the primary means by which parties present evidence on the issue of a reasonable royalty. Weil & Horne, *supra* note 287, at 1361.

293. A synthesis of the other factors, this factor permits a licensee to argue that the royalty rate should be tied to profits – not revenues – thereby leaving it with some profit.

294. THE FED. CIRCUIT BAR ASS’N, *supra* note 284, at 70-71.

market from reduced competition.²⁹⁵ A better way of looking at patent damages – and how they impact innovation – would help.

The problem stems, in part, from the high costs of, and the abusive practices endemic to, patent litigation.²⁹⁶ The problem is also rooted in an over-worked Patent Office, which grants poor-quality “paper patents”²⁹⁷ that contribute to the erosion of confidence we once had in the patent system.²⁹⁸ And the recent cottage industry of “patent trolls”²⁹⁹ – as part of the problem or part

295. See James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 25-27 (2005) (“It is possible that increasing litigation imposes an increasing burden on innovators who cannot avoid the growing maze of patents and ambitions of patent owners. . . . Certain strategic uses of patents are socially harmful; more empirical research is needed to quantify the social loss from anti-competitive and opportunistic patent litigation, and guide policies that will discourage anti-social litigation.”); Landers, *supra* note 271, at 346 (“Such licensing companies are compared to ‘terrorists’ that ‘threaten legitimate innovators and producers.’”); Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1112 (2003) (“[M]any non-manufacturing owners are holdup artists or ‘trolls’ who are in the business of litigation, not innovation.”).

296. See *supra* notes 119–29 and accompanying text (discussing the 2007 AIPLA survey results on the cost of patent litigation).

297. Kesan & Gallo, *supra* note 84, at 84 n.90 (“The term ‘paper patent’ is commonly used to refer to patents that are not employed in any technology or ever licensed. They are property rights merely on paper.”); see also Dan L. Burk & Mark A. Lemley, *Biotechnology’s Uncertainty Principle*, 54 CASE W. RES. L. REV. 691, 696 n.17 (2004) (“Of course, in the case of constructive reduction to practice, or filing a ‘paper patent’ without having actually made the invention, the inventor is in some sense speculating or guessing about the features of an invention not yet built.”).

298. Homer, *supra* note 17, at 275 (“The assertion that the PTO is overwhelmed, under-funded, and issuing too many low quality patents has universal acceptance.”).

299. Jeremiah Chan & Matthew Fawcett, *Footsteps of the Patent Troll*, 10 INTELL. PROP. L. BULL. 1, 1 (2005) (“Critics contend that they are the ambulance chasers of the new millennium.”); Mark A. Lemley, *Patenting Nanotechnology*, 58 STAN. L. REV. 601, 626 (2005); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2008-09 (2007); Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 1023 n.305 (2005); Raymond P. Niro, *Who Is Really Undermining the Patent System—“Patent Trolls” or Congress?*, 6 J. MARSHALL REV. INTELL. PROP. L. 185, 187 (2007) (“Are ‘patent trolls’ really so dangerous that legislation is needed to reform the patent system?”); Steve Seidenberg, *Troll Control*, A.B.A. J., Sept. 2006, at 51, 53; David G. Barker, Comment, *Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review*, 2005 DUKE L. & TECH. REV. 9 ¶ 7 (“Some commentators have described corporate patent trolls as ‘patent system bottom feeders’ who buy ‘improvidently-granted patents from distressed companies for the sole purpose of suing legitimate businesses.”); Elizabeth D. Ferrill, Comment, *Patent Investment Trusts: Let’s Build a PIT to Catch the Patent Trolls*, 6 N.C. J.L. & Tech. 367, 376 (2005); 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, 189 (2006).

of the solution – has increased the need to face the challenges to the patent system of the 21st century as parties opt for settlement in lieu of the exorbitant costs associated with defending against the high-stakes expense of patent litigation.³⁰⁰

These problems are significant. That, unfortunately, is the reality. But the problems can be fixed.

What needs to be restored to the patent system, with the necessary assistance of the courts, is the notion that inventors should be empowered to write their own destinies. The occurrence of talented inventors working concurrently and independently on substantially the same invention is not uncommon. When they do so, the jury ought to take this into consideration as a mitigating factor in calculating damages by hearing how the defendant did not copy the plaintiff's invention but, rather, produced it by a simultaneous discovery and independent development. This would be fair to the plaintiff, who would still receive a compensatory damages award from the defendant in a reduced amount and unmitigated full damages from all others found to infringe the patent. Conversely, it would give some equitable consideration in the form of a damages reduction to the defendant since liability attaches even for otherwise innocent infringement.³⁰¹ The amount of the reduction would promote innovation by enticing, supporting, and rewarding investments in R&D, and would have the added bonus of ultimately inuring to the benefit of the public. The present section sets forth the analytical framework for this

300. Compare Niro and McDonough, *supra* note 299 (arguing that patent trolls are good for the patent system), with Bessen & Meurer, *supra* note 295, at 16 (“A rational defendant will sometimes yield to the threat of a weak suit for three main reasons. First, court errors are difficult to avoid in patent litigation, because claim interpretation is complex and it is difficult for fact-finders to assess evidence of infringement. Thus, a deserving defendant may face a significant risk of liability. Second, a weak lawsuit may be difficult to distinguish from a strong lawsuit, at least until a defendant gathers information about the patent through discovery. Finally, even a weak lawsuit may impose significant costs on the defendant, and the defendant might settle to avoid the nuisance of mounting a defense.” (footnotes omitted)); Kesan & Gallo, *supra* note 84, at 69 n.36 (“Although they [bad patents] are prone to attacks on their validity, bad patents may nevertheless deter meritorious challenges: ‘[S]mall companies may not be willing to invest resources in such a challenge, especially with the presumption of validity that attends PTO decisions. Rather, it may make more sense for these companies to accept a license fee from the patentee, thereby leaving the inappropriate patent unchallenged.’” (alterations in original) (quoting Larry A. DiMatteo, *The New “Problem” of Business Method Patents: The Convergence of National Permit Laws and International Internet Transactions*, 28 RUTGERS COMPUTER & TECH. L.J. 1, 23 (2002)).

301. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1368 (Fed. Cir. 2007) (en banc) (“[P]atent infringement is a strict liability offense”); *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1527 (Fed. Cir. 1995) (en banc) (“[I]ntent is not an element of direct infringement, whether literal or by equivalents. . . . Infringement is, and should remain, a strict liability offense.”), *rev’d*, 520 U.S. 17 (1997).

novel mitigation defense in hopes of motivating innovation for both plaintiffs and defendants.

A. A Novel Theory to Mitigate Damages

Tesla was confident that his contributions to radio would someday be recognized. At seventy-one years of age, he was asked about the patent wars that were simmering in court. Pausing, with a smile on his face, he answered, "Let the future tell the truth and evaluate each one according to his work and accomplishments. The present is theirs, the future, for which I really worked, is mine."³⁰²

But radio was not invented by a single person. Instead, it culminated from contributions of many scientists. Imagine what those scientists could have done working together, or without fear of Marconi's lawsuits and the potential for large patent damage awards that can cripple, and even bankrupt, a defendant. Yet, Marconi wielded an invalid patent monopoly that "stood without adverse judicial decision for over thirty years"³⁰³ during radio's expansion from 1915 until 1940, while a discouraged Tesla, who lacked the "financial condition to litigate a case against a major corporation,"³⁰⁴ "watched quietly from the sidelines."³⁰⁵

It is as important to the public that competition in developing valuable inventions should not be suppressed as it is that the patentee of a valid patent should be protected by a monopoly. Accordingly, Tesla's story is worthy of discussion in the face of a growing impetus to modernize and improve the patent system. Indeed, while courts hear an ever-increasing number of patent infringement cases brought by patent trolls, as reasonable royalties eclipse lost profits as the measure of compensation for infringement, and when defendants agree to license invalid patents in order to dodge the soaring costs of patent litigation, there is a need for a more balanced approach to damages. The approach introduced in this article focuses on modifying reasonable royalties as an attempt to correct flaws in the patent system that grants low-quality patents, to accommodate competition in a changing global economy, and to encourage inventors who invest time, money, and labor in R&D that will benefit society.

So, what is the simultaneous-discovery-independent-development defense?

Notably, there is a spectrum of reasonable royalties (rates and bases) as measured by a royalty rate and a royalty base. The minimum royalty guar-

302. CHENEY, *supra* note 33, at 230. On January 7, 1943, at the age of 86, Tesla died in his sleep. *Id.* at 324. Months after Tesla's death, the United States Supreme Court handed down its ruling, in *Marconi*, which arguably recognized Tesla as an earliest "inventor of radio." *Id.* at 327.

303. *Marconi Wireless Tel. Co. of Am. v. United States*, 320 U.S. 1, 67 (1943).

304. CHENEY & UTH, *supra* note 57, at 68.

305. TRINKAUS, *supra* note 82, at 1.

antees that the innovative plaintiff is better off for its invention, while the maximum royalty guards against muffling all ingenuity by a prospective defendant. When no change can make one better off without making the other worse off, that is the reasonable royalty in actual, as well as hypothetical, negotiations.³⁰⁶

Therefore, a simultaneous-discovery-and-independent-development defense is a way to adequately compensate the plaintiff for an innocent infringement on the one hand,³⁰⁷ while mitigating damages awarded against this defendant on the other, by providing a reasonable cap on damages. An all-or-nothing bright-line rule that only favors the plaintiff regrettably turns patent damages into a game of heads-I-win, tails-you-lose. Offering a defendant some measure of relief from damages, when the defendant has proven a simultaneous discovery and independent development, brings clarity and fairness to the discussions between the plaintiff and defendant, both in the boardroom during real-life negotiations and in the courtroom during hypothetical negotiations.

Plainly stated, the maximum royalty (or damages cap) must fall below the upper bound of what a defendant would be willing to pay without being made worse off by the burden of a license set too high. A negotiated royalty necessarily is a function of the defendant's simultaneous discovery and independent development, because the defendant is better informed about the costs of tweaking its own product in order to avoid a reasonable construction of the patent claim and, as a result, infringement.³⁰⁸

306. It might appear that *any* change in royalty calculations are necessarily going to make one party better off and the other party worse off, but economists may model hypothetical negotiations that alter the royalty until no change will make either party better off without making the other worse off. In economics, this might be referred to as the Edgeworth box for finding a competitive equilibrium. See ANDREU MAS-COLELL, MICHAEL D. SHINSTON & JERRY R. GREEN, MICROECONOMIC THEORY 512-96 (Oxford Univ. Press 1995); MARTIN J. OSBORNE & ARIEL RUBINSTEIN, A COURSE IN GAME THEORY 127-33, 139, 192 (The MIT Press 1994); Barbara Ann White, *Coase and the Courts: Economics for the Common Man*, 72 IOWA L. REV. 577, 604 (1987). As a further example, in supply-and-demand economic theory, economists might model a first curve to represent a royalty above which a licensee would willingly pay (e.g., leaving the licensee to sell at no profit) and a second curve to represent a royalty below which a licensee would willingly accept (e.g., leaving the licensor with sunk costs in R&D). In law, we might simplify this to a market value approach that makes each party equally worse off, such as home owner who accepts \$1,000 less than its bottom line and a buyer who offers \$1,000 more than it was willing to pay; adjusting the price \$1 would make one party better off and the other party worse off.

307. *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 480 (1964).

308. Hausman, Leonard & Sidak, *supra* note 1, at 832 ("An important consideration is whether there exist any noninfringing 'design-arounds' and the costs of

Procedurally, it is an affirmative defense³⁰⁹ so as to place the onus on the defendant, the party who benefits from the theory to mitigate damages. Moreover, it is a personal defense that extends to this defendant and its privies (e.g., assignees, exclusive licensees) in order to promote investment in the defendant's research and development. Like other affirmative defenses, it is a partial defense to the extent it does not absolve the defendant of the underlying patent infringement, but instead, is a factor that the jury considers in calculating patent damages that fairly compensate the plaintiff. Meanwhile, the plaintiff can still enforce its patent against others and can seek damages to the full extent of existing law, without any cap on damages.

1. Pleading Simultaneous Discovery and Independent Development

The first step is the pleadings, initial disclosures,³¹⁰ and scheduling conference.³¹¹ The defendant must identify that it will be pleading simultaneous discovery and independent development. Clearly, the defendant should know whether it independently developed the accused product. This evidence should be in the defendant's possession, custody, or control. Thus, soon after being sued for patent infringement, the defendant should be able to demonstrate that it actually used, actively investigated, and made substantial preparation of the product it claims to have independently developed,³¹² or risk summary judgment as to this defense at an early stage of the litigation.

Any refusal, inability, or failure to produce such evidence should give rise to a rebuttable presumption of spoliation,³¹³ or else the defendant has no incentive to keep laboratory notebooks, models, or other proof of invention. Plainly stated, a bald face and conclusory argument that evidence once existed rings hollow and should be entitled to no weight. A less stringent standard without a sanction would discourage a less scrupulous defendant from maintaining evidence. In contrast, the sanction encourages a defendant to preserve evidence of its simultaneous discovery and independent develop-

implementing and using those design-arounds as compared to using the patented technology.”).

309. See FED. R. CIV. P. 8(c).

310. See FED. R. CIV. P. 26(a)(1).

311. See FED. R. CIV. P. 26(f).

312. Cf. Hausman, Leonard & Sidak, *supra* note 1, at 835 (“Courts are often reluctant to credit the use of an alternative technology by the infringer when the infringer did not actually use or actively investigate the substitute technology.”).

313. *Zubulake v. UBS Warburg, LLC*, 229 F.R.D. 422, 430 (S.D.N.Y. 2004) (“[T]he destruction or significant alteration of evidence, or the failure to preserve property for another’s use as evidence in pending or reasonably foreseeable litigation.” (quoting *West v. Goodyear Tire & Rubber Co.*, 167 F.3d 776, 779 (2d Cir. 1999))); see also *Zubulake v. UBS Warburg, LLC*, 220 F.R.D. 212 (S.D.N.Y. 2003); *Zubulake v. UBS Warburg, LLC*, 216 F.R.D. 280 (S.D.N.Y. 2003); *Zubulake v. UBS Warburg, LLC*, 217 F.R.D. 309 (S.D.N.Y. 2003); *Zubulake v. UBS Warburg, LLC*, 230 F.R.D. 290 (S.D.N.Y. 2003).

ment. Thus, a sanction protects the plaintiff from any hardship that may result from a defendant's lost evidence. And if a defendant can meet its burden of production, then in fairness the plaintiff will be armed with additional evidence to use in its own case in chief.

2. Proving a Prima Facie Case of Simultaneous Discovery and Independent Development

The second step is a preliminary determination by the court of whether the defendant has established a prima facie case of inventorship before the plaintiff's patent application was published. A prima facie case of inventorship was chosen for many reasons.

Inventorship more accurately comports with the policy of promoting innovation by requiring corroborating documentary evidence of conception and reduction to practice of the simultaneous discovery and independent development. Thus, one virtue of the defense is that this step borrows from familiar concepts and well-established principles of patent law, which makes the defense that much more palatable to the bar and judiciary.³¹⁴

The Federal Circuit requires that an inventor prove "conception or reduction to practice of the invention"³¹⁵ by the high standard of "clear and convincing evidence."³¹⁶ The Federal Circuit defines conception as the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice."³¹⁷ Explaining the requirement that the conception be "complete," the Federal Circuit holds that a conception is not complete until the idea is "so clearly defined in the inventor's mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation."³¹⁸

314. See 35 U.S.C. § 116 (2000 & Supp. 2003); see also *infra* notes 337-400 and accompanying text (discussing the law on proving inventorship).

315. *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998); see also *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998); *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997). Other ways of proving inventorship are to "(2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art." *Pannu*, 155 F.3d at 1351.

316. *Ethicon*, 135 F.3d at 1461 ("However, 'an inventor's testimony respecting the facts surrounding a claim of derivation or priority of invention cannot, standing alone, rise to the level of clear and convincing proof.'" (quoting *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993))).

317. *Stern v. Trs. of Columbia Univ.*, 434 F.3d 1375, 1378 (Fed. Cir. 2006) (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).

318. *Id.* (quoting *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994)).

Another virtue is that the defense will not complicate the case to any appreciable extent, because while clear and convincing evidence is required at trial, a *prima facie* standard discourages a trial-within-a-trial at the evidentiary stage. When faced with the distinction between where that line lies, courts are uniquely equipped to make evidentiary rulings,³¹⁹ which bears on the court's expertise as a gatekeeper.³²⁰ All of this places the court on friendly and comfortable territory in ruling on the issue of whether to allow the defendant to introduce its simultaneous discovery and independent development into evidence.

Because a patent application is confidential until published, the defendant ought to be limited to the proof that preexisted the publication date of the application that matured into the asserted patent.³²¹ Not only does this foster certainty, this cutoff also rewards a plaintiff who requests an early publication of its patent, while concurrently benefiting society by the earlier publication of the application and disclosure of the invention.³²²

3. Helping a Jury to Visualize Simultaneous Discovery and Independent Development

The third and final step involves the jury. Simply put, the jury hears much of the same evidence it would hear under a reasonable royalty or lost profits analysis, although it might hear a little more history of the defendant's product development. The court may ask the jury to return a written question,³²³ formerly known as a special interrogatory. In the written question, the jury answers whether the defendant proved by clear and convincing evidence³²⁴ that the accused product was the result of defendant's simultaneous discovery and independent development prior to the publication date of the plaintiff's patent application or the issue date of the plaintiff's patent, whichever date is earliest.³²⁵ The jury may then award the plaintiff damages

319. See FED. R. EVID. 103; FED. R. EVID. 104.

320. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 145 (1999); *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 589-90 (1993).

321. 35 U.S.C. § 122(a)-(b) (2000) (Applications are kept confidential by the Patent Office and published generally eighteen months after its earliest filing date, unless the applicant requests early publication.).

322. *Id.* § 122(b)(1)(A) ("At the request of the applicant, an application may be published earlier than the end of such 18-month period.").

323. FED. R. CIV. P. 49(a).

324. The Supreme Court has defined the clear and convincing standard merely to require evidence of high probability – not absolute certainty. *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984) (Clear and convincing evidence is evidence that "could place in the ultimate factfinder an abiding conviction that the truth of [the] factual contentions are 'highly probable.'").

325. Examples of written questions that could be given to the jury include:

Q: Do you find to a reasonably high degree of probability that, on or before the earlier date of plaintiff's published patent application or issued patent or defendant's first

in an amount “adequate to compensate for the infringement,”³²⁶ but reduced by an amount, if any, proximately related to the value of non-patented features, improvements added, and independent development by the defendant.

If there has been a simultaneous discovery and independent development, the reality is that some or most of the would-be licensee’s product is not covered by the patent. This can be relatively easy for the jury to quantify. Also, if the defendant completed a product before a plaintiff obtains a patent, the jury can award a reasonable royalty that “factors out” the prior development by the defendant before the date when the plaintiff’s application published or patent issued.

A picture is worth a thousand words, and this applies to the jury’s analysis of how to quantify the mitigation of damages. The jury has already heard about the hypothetical negotiation as part of the *Georgia-Pacific* analysis.³²⁷ Like a then-and-now or before-and-after snapshot, the jury can observe the differences between the plaintiff’s patented invention and the defendant’s own independently developed product at a time prior to the date when the plaintiff’s patent issued or patent application published. This picture might be a computer program by which the defendant provides documentation of how the defendant performed a relevant task on a computer system that was incorporated into the accused device. Or it could be something mechanical like Supreme Court Justice Breyer’s mechanism for bicycle pedals used with a bicycle system.

Justice Breyer mentioned his bicycle pedal mechanism in a 2008 oral argument.³²⁸ His bicycle example raises real-life concerns of how patent litigation, damages, and royalty stacking³²⁹ for system patents may have direct negative consequences on all consumers, even Supreme Court Justices:

knowledge of plaintiff’s invention, the defendant actually used, actively investigated, and made substantial preparation of the accused product?

Q: If so, do you find that the defendant reasonably expected or should have expected to make the accused product fully operable without extensive research or experimentation?

Q: If so, what is the proximate value of non-patented features, improvements, and independent development of the accused product by the defendant?

326. 35 U.S.C. § 284 (2000).

327. See *supra* notes 264-94 and accompanying text (discussing reasonable royalties and the *Georgia-Pacific* evidentiary factors).

328. Transcript of Oral Argument at 21, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109 (2008) (No. 06-837). Although the case tangentially raised issues of contract and antitrust law, the ultimate issue before the Supreme Court was patent exhaustion and contributory infringement. Osborne, *supra* note 272 *passim* (The commentator addresses the *Quanta* case by offering a precise resolution by demonstrating that patent exhaustion and contributory infringement are at opposite ends of the same principle in the *Quanta* factual scenario and that Section 271(c) is fully dispositive of the case.).

329. Lemley & Shapiro, *supra* note 299 *passim*.

So what I do I go to the shop and I buy this, this mechanism with the pedals on it, and then I insert it in my bicycle. Now, actually I need help in doing that, but I do it. Okay. Now I start pedaling off, and now what is it for all these things here that would stop that original inventor from catching me and hauling me into court, and say, what you've done, Breyer, is you've put my – my mechanism here in this bicycle and I happen to have a patent on the system.³³⁰

By analogy, one may suggest that a jury compare a defendant's independently developed bicycle system and the plaintiff's patented bicycle system. If the difference lies only in the plaintiff's pedal mechanism, then the jury can award damages based on the value added by the plaintiff's pedal mechanism, thereby subtracting out of the equation what the defendant independently developed: frame, drivetrain, steering, seating, brakes, suspension, and wheels.³³¹

As a result of the defense proposed here, the plaintiff would be fairly compensated for that which makes its bicycle system patentably distinct.³³² Moreover, the damages award would be free from the risk of over-compensating the plaintiff with a windfall that might deter a would-be defendant from investing, developing, or making substantial preparation in new products.³³³ A more balanced and modernized approach to damage calculations will usher in innovations, refinements, and advancements that may otherwise be silenced by reasonable royalties that are “at best arbitrary and at worst punitive.”³³⁴ For example, the jury may recognize the defendants' contributions of a futuristic braking system as being the driving force behind sales of the accused device, but the plaintiff will still be justly and fairly compensated for what was truly patentably distinct about its invention. This places the plaintiff in the same position economically as it would have been had the defendant not infringed its patent, but at the same time avoids harming a potential defendant's incentive to develop innovative products and services.

330. Transcript of Oral Argument at 36, *Quanta Computer*, 128 S. Ct. 2109 (2008) (No. 06-937). For the transcript, visit the Supreme Court website at <http://www.supremecourtus.gov/> (last visited Sept. 14, 2008) and select “Oral Arguments” and then “Argument Transcripts” on the next screen. Finally, select the transcript for the Jan. 16, 2008 argument in case No. 06-937 in *Quanta Computer, Inc. v. LG Electronics, Inc.*

331. See *Bicycle*, 2 THE NEW ENCYCLOPAEDIA BRITANNICA 198-200 (2007) (design and components of a bicycle).

332. Osborne, *supra* note 272, at 290 (“A holding based on patentable distinctiveness and reflective of the actual scope of the LEG/Intel license will avoid a collision between Justice Breyer's bicycle and the ignored elephant of patent exhaustion.”).

333. Landers, *supra* note 271, at 310 (“Awarding damages for unpatented components of an infringing device can be seen as overcompensation for actual harm suffered by patentees, expanding patent rights beyond their scope, and threatening to deter lawful innovative activity.”).

334. Bensen & White, *supra* note 23, at 40.

4. Compensating a Plaintiff While Encouraging a Defendant to Innovate: Because Changing Times Demand It

Beyond the Constitutional mandate to promote science³³⁵ and eschew laws that spurn innovation, recognizing and rewarding a simultaneous discovery and independent development helps to modernize the patent system for the 21st Century in view of low-quality patents, high costs of patent litigation, and ever-increasing global competition.³³⁶ In addition, this mitigation defense finds support in *Georgia-Pacific*³³⁷ and the Federal Circuit Bar Association's Model Patent Jury Instructions.³³⁸ One evidentiary factor a jury may consider is the "use made of the invention" by the infringer,³³⁹ while the instruction also allows a jury to consider "any other factors which in your mind would have increased or decreased the royalty the infringer would have been willing to pay and the patent holder would have been willing to accept, acting as normally prudent business people."³⁴⁰

Courts have failed to utilize these factors, despite the fact that they appeared in *Georgia Pacific*, but these factors allow a jury's damage award to more accurately reflect the value that a potential licensee would place on the patent in a licensing negotiation. When a would-be defendant believes (and can show) that it simultaneously discovered (or independently developed) its own product, experience has taught the author that such a defendant is typically a less-than-willing buyer notwithstanding the plaintiff's asserted patent claim. And by not starting from scratch, the defendant believes it is in an optimal position to design around the plaintiff's patent claim should infringement be found. Therefore, if the true goal is to model and emulate a hypothetical negotiation, then these factors most efficiently contemplate the maximum amount a potential licensee would pay.

The simultaneous-discovery-and-independent-development defense finds support in these *Georgia-Pacific* factors and accords with well-established precedent. The Federal Circuit has on many occasions reminded trial

335. U.S. CONST. art. I, § 8, cl. 8 (Congress has the power to "promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.").

336. See *supra* Part III.

337. *Ga.-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (The list of fifteen evidentiary factors were "drawn from a conspectus of the leading cases."), *modified*, 446 F.2d 295 (2d Cir. 1971).

338. See *supra* notes 284-94 and accompanying text (discussing the Federal Circuit Bar Association's patent jury instructions).

339. *Ga.-Pac. Corp.*, 318 F. Supp. at 1120 (Evidentiary factor number 11: "The extent to which the infringer has made use of the invention; and any evidence probative of that use."); see also THE FED. CIRCUIT BAR ASS'N, *supra* note 284, at 71 (Model jury instruction 6.7(10) is the same.).

340. THE FED. CIRCUIT BAR ASS'N, *supra* note 284, at 71 (Model jury instruction 6.7(14)).

courts to use their “own independent judgment”³⁴¹ in assessing “hypothetical negotiations between a willing licensor and a willing licensee.”³⁴² The matter of what pertinent factors to consider in these hypothetical negotiations are left primarily to the discretion of the court.³⁴³ Moreover, the defense ensures that a reasonable royalty is “based on the entirety of evidence in the record.”³⁴⁴

The proposed defense recognizes that the value of a hypothetical license negotiated by a potential licensee during its nascent stages of product development is higher than the value to a potential licensee who has simultaneously discovered and independently developed its own equivalent product. Since the courts recognize that a first step in making a reasonable royalty calculation is to determine the date on which the negotiation began, it is true beyond cavil that a licensee who needs the plaintiff’s know-how, research tools, and ideas would pay more than the licensee who already is at the point of placing its independently developed product on the market. Between the two hypothetical licensees, the latter licensee would be in the better position to more easily implement a workaround.³⁴⁵

Furthermore, the defense is more workable than a recent suggestion to apportion damages to plaintiff’s contributions over prior art.³⁴⁶ Unlike appor-

341. *Radio Steel & Mfg. Co. v. MTD Prods., Inc.*, 788 F.2d 1554, 1556 (Fed. Cir. 1986).

342. *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1168 (Fed. Cir. 1991).

343. *Instituform Techs., Inc. v. CAT Contracting, Inc.*, 385 F.3d 1360, 1379 (Fed. Cir. 2004) (“[C]ertain subsidiary decisions underlying a damage theory are discretionary with the court” (alteration in original) (quoting *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1164 (Fed. Cir. 1991))); *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1338 (Fed. Cir. 2004) (“The methodology for calculating the amount of a reasonable royalty to be awarded is within the discretion of the district court”); *Dow Chem. Co. v. Mee Indus., Inc.*, 341 F.3d 1370, 1382 (Fed. Cir. 2003) (“[T]he district court should consider the so-called *Georgia-Pacific* factors in detail.” (citation omitted)).

344. *Mitutoyo Corp. v. Cent. Purchasing, LLC*, 499 F.3d 1284, 1292 (Fed. Cir. 2007).

345. *Cf. Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1311 n.12 (Fed. Cir. 2007) (One factor a court weighs in a determination of whether to award an injunction, and the scope thereof, is whether to allow a defendant time “to implement a workaround that would avoid continued infringement . . . before issuing its injunction.”).

346. Ariel Reich, Freddie Park & Joe Eandi, *Industry Issues and Trends*, 927 PRACTISING L. INST. 1033, 1052-53 (2008) (“The court shall conduct an analysis to ensure that a reasonable royalty under paragraph (1) is applied only to that economic value properly attributable to the patent’s specific contribution over the prior art. In a reasonable royalty analysis, the court shall identify all factors relevant to the determination of a reasonable royalty under this subsection, and the court or the jury, as the case may be, shall consider only those factors in making the determination. The court shall exclude from the analysis the economic value properly attributable to the prior

tionment, the proposed defense keeps the burden where it belongs – on the defendant, who is in the best position (having possession, custody, and control of its product history) to show simultaneous discovery and independent development of the accused product.³⁴⁷ Additionally, the present defense is more straightforward than the complex analysis of prior art required under the apportionment suggestion.³⁴⁸ Indeed, parties can rarely agree on the definition of prior art and whether a particular reference fits that definition.³⁴⁹

Also, the defense encourages efficiency. For instance, it avoids overloading the Patent Office by reducing the need for a defendant to file patent applications at each stage of its product development. Furthermore, both parties are advantaged by using the application publication date, which is often eighteen months after the effective filing date.³⁵⁰ The plaintiff is benefited by an eighteen-month date even though the patent might not issue until years later.³⁵¹ And the defendant avoids corporate waste that would result if it was compelled to abandon all efforts that happened over the eighteen-month period after the filing date of a confidential and unknown application by the plaintiff.³⁵²

By recognizing a simultaneous discovery and independent development as a way to cap damages, courts would serve the public aim of compensating a plaintiff without reducing a defendant's incentive to innovate. Other principles of public policy also militate in favor of the defense. There will be increased efficiency in a trial court's efforts to resolve the case via settle-

art, and other features or improvements, whether or not themselves patented, that contribute economic value to the infringing product or process.”)

347. See *id.* at 1053-54 (“Burden of Proof: the Chief Judge felt the burden for apportionment should remain with the infringer, not as the revised 35 U.S.C. § 254(a)(3) would have it . . .” (footnote omitted)).

348. See Stephen T. Schreiner & Karen Axt, *Why Banks Are Now Implementing Patent Programs and How Patent Legislative Reforms Will Affect Banks*, 124 BANKING L.J. 724, 731 (2007) (As to “apportioning damages to a patent’s contributions over the prior art . . . Judge Michel suggested this would be a massive undertaking for courts and juries, requiring complex calculations and economic valuations not only of the patentable advance but also of the prior art.”).

349. *Riverwood Int’l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003) (“The term ‘prior art’ as used in section 103 refers at least to the statutory material named in 35 U.S.C. § 102. However, section 102 is not the only source of section 103 prior art.” (citation omitted)).

350. 35 U.S.C. § 122(b)(1) (2000) (publication of patent applications).

351. 35 U.S.C. § 154(d) (2000 & Supp. 2003) (“[A] patent shall include the right to obtain a reasonable royalty from any person who, during the period beginning on the date of publication of the application for such patent under section 122(b)” infringes the patent.).

352. 35 U.S.C. § 122(a) (confidential status of applications).

ment.³⁵³ For instance, if the defendant has ample evidence to prove its simultaneous discovery and independent development, then the plaintiff might be more likely to settle short of trial. This results in judicial economy and a cost savings to the parties that can be better invested in innovative R&D.

Furnishing additional justification for the proposed defense is an image of invalid patents that undermines public confidence in the Patent Office. This was seen from a historical perspective in the discussion of how Marconi foisted an invalid patent as a way to hold down a monopoly in radio. And while “bad”³⁵⁴ patents have mired the Patent Office in a wave of negative publicity, the United States Supreme Court recently sounded off on the invalidity of weaker patents that will be sure to give patents an image makeover.

In *KSR International Co. v. Teleflex Inc.*,³⁵⁵ the Court effectively invalidated a patent based on obviousness grounds, raised the bar on patentability,³⁵⁶ and concomitantly signaled a willingness to lower the boom on improvidently issued paper patents. Rejecting the Federal Circuit’s rigid approach of requiring obviousness to be proven by the “teaching, suggestion, or motivation” test,³⁵⁷ the Supreme Court expressed “the need for caution” in granting patents or preserving their validity.³⁵⁸ Moreover, the Supreme Court emphasized “real innovation” as the driving force of the quid pro quo for a patent monopoly: “Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.”³⁵⁹

353. FED. R. CIV. P. 16(a)(5) (Purpose of scheduling conference includes “facilitating settlement.”); *see also* FED. R. CIV. P. 16 cmt. (Conference is for “improving, as well as facilitating, the settlement process.”).

354. Kesan & Gallo, *supra* note 84, at 77.

355. 127 S. Ct. 1727 (2007).

356. “If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid under § 103.” *Id.* at 1734.

357. *Id.* at 1735. Under the “teaching, suggestion, or motivation” test, a patent claim is only proved to be invalid for obviousness if “some motivation or suggestion to combine the prior art teachings’ can be found in the prior art, the nature of the problem, or the knowledge of a person having ordinary skill in the art.” *Id.* at 1734.

358. *Id.* at 1739. The Supreme Court set forth an expansive and flexible approach to the test for obviousness, a test that sweeps in teachings from multiple prior art references in the same or different field and improvements in the same or similar devices, considers demands in the marketplace for an improvement and the background knowledge possessed by one of ordinary skill in the art, and asks whether the patent claim does no more than yield a combination of familiar elements to achieve a predictable result. *Id.* at 1739-41; *see also id.* at 1741 (“As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”).

359. *Id.* at 1741.

Buoyed by policies of promoting innovation and the progress of science on the one hand, without the high price paid to legitimate competition on the other, one senses a turning point in patent law. At this crossroad lies the fundamental need to encourage innovation by granting a patent monopoly, while at the same time acknowledging the untoward consequence that a plaintiff's patent monopoly might be a deterrent to a defendant's innovation:

We build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more. And as progress beginning from higher levels of achievement is expected in the normal course, the results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts.³⁶⁰

The Supreme Court's recent patent rulings³⁶¹ suggest the Supreme Court might be open to creative theories that strike a different balance. All things considered, public policy of promoting the sciences underlies the patent system. At the same time, however, there is an equal and countervailing public policy of protecting patent monopolies without undermining the patent system and a defendant's incentive to innovate.

Similarly, leading Congressional members, who on behalf of the House and Senate Judiciary Committees that introduced stalled legislation in the Patent Reform Act of 2007, have underscored many of the same policy reasons that buttress the novel defense proposed in this article:

High patent quality is essential to continued innovation. Litigation abuses, especially ones committed by those which thrive on low quality patents, impede the promotion of the progress of science and the useful arts. . . . Strengthening intellectual property leads to economic growth, job creation and the type of creativity that has made America the envy of the world. The bill is a good first start.³⁶²

Simultaneous discovery and independent development is a novel theory to cap patent damages. It strikes the right balance between protecting a plain-

360. *Id.* at 1746.

361. *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

362. See Press Release, Senator Patrick Leahy, Leahy, Hatch, Berman and Smith Introduce Bicameral, Bipartisan Patent Reform Legislation (Apr. 18, 2007), available at <http://leahy.senate.gov/press/200704/041807a.html>. (last visited Sept. 14, 2008).

tiff's right to monetize the patent and safeguarding innovative companies that are grappling with litigation costs as they strive to bring useful new products to consumers. Therefore, the theory awards patent damages to a plaintiff without dampening investment in research and development of potential defendants. And it places the responsibility for proving the defense squarely where it belongs – on the defendant.

B. Support from Other Areas of Law

Firmly established areas of intellectual property law support the recognition that simultaneous discovery and independent development ought to be a mitigating factor in measuring reasonable royalties for patent damages. Courts may borrow from well established patent principles, such as obviousness under Section 103 and the “Doctrine of Equivalents” as well as the independent creation defenses under copyright and trade secret law to provide this further support.

1. Obviousness under Section 103

Under Section 282 of the patent statute, “a patent enjoys a presumption of validity.”³⁶³ In order to overcome the presumption, the accused infringer must mount clear and convincing evidence of invalidity.³⁶⁴ For instance, the patent might be invalid for obviousness under Section 103(a) of the patent statute.³⁶⁵ The test of whether a patent is invalid for “obviousness” is dependent on underlying factual determinations that, in a jury trial, are decided by the jury, with the ultimate question of obviousness being a legal conclusion for the court.³⁶⁶ The United States Supreme Court in 2007 reiterated the analytical framework for courts to follow when applying Section 103(a).³⁶⁷

363. *SRAM Corp. v. AD-II Eng'g, Inc.*, 465 F.3d 1351, 1357 (Fed. Cir. 2006); see 35 U.S.C. § 282 (2000 & Supp. 2003) (“A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.”).

364. *SRAM Corp.*, 465 F.3d at 1357.

365. 35 U.S.C. § 103(a) (2000 & Supp. 2005).

366. *Dystar Textilfarben GmbH & Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006); *Kao Corp. v. Unilever U.S., Inc.*, 441 F.3d 963, 968 (Fed. Cir. 2006).

367. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007) (The United States Supreme Court reiterated the analytical framework for courts to follow when applying Section 103(a): determining the scope and content of the prior art, ascertaining the differences between the prior art and the patent claims at issue, resolving the level of ordinary skill in the pertinent art, considering a nexus of the invention to objective indicia of nonobviousness if in issue, and against this backdrop determining

One inquiry in this analytical framework is the “objective indicia of nonobviousness,” sometimes known as “secondary considerations of nonobviousness.”³⁶⁸ These considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention, though appearing to have been obvious in light of the prior art, was not obvious. It is to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.³⁶⁹

These indicia include an inquiry of whether the defendant is guilty of “copying” plaintiff’s invention or whether there was “near-simultaneous invention.”³⁷⁰ A defendant’s copying plaintiff’s invention is at one end of the spectrum and supports a conclusion of nonobviousness, while “near-simultaneous invention” is at the other end of the spectrum and suggests obviousness. Moreover, in 2007, Chief Judge Michel of the Federal Circuit acknowledged that the defendant’s product history is relevant when it shows the later-accused feature was considered by the defendant more than one year before the effective date of plaintiff’s patent.³⁷¹ Therefore, as one commentator has stated, “[t]he one secondary consideration on the list that may indicate obviousness, rather than nonobviousness, is near-simultaneous invention.”³⁷²

obviousness or nonobviousness); *see also* *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

368. *Graham*, 383 U.S. at 17-18 (discussing “secondary considerations” and “indicia of obviousness or nonobviousness”); *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1327-28 (Fed. Cir. 2008) (analyzing whether a prima facie case of obvious was rebutted by “secondary considerations of nonobviousness”); *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1160-62 (Fed. Cir. 2007) (discussing “secondary considerations of nonobviousness”); *Dystar*, 464 F.3d at 1371 (“secondary considerations of nonobviousness”); *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 667-68 (Fed. Cir. 2000) (“[S]econdary considerations, when present, must be considered”); *Litton Systems, Inc. v. Honeywell, Inc.*, 87 F.3d 1559, 1569 (Fed. Cir. 1996) (discussing “objective indicia of nonobviousness”); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1575 (Fed. Cir. 1983) (“When objective evidence of nonobviousness is available it must be considered.”).

369. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983).

370. Alan L. Durham, *Patent Symmetry*, 87 B.U. L. REV. 969, 980 (2007).

371. *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 597 (Fed. Cir. 2007) (“In addition, [defendant’s] later decision to add such a sleeve to the [accused product] actually seems to support a finding of obviousness rather than non-obviousness. . . . [The product’s] history is undisputed evidence that the idea of incorporating a locating sleeve to improve alignment capability was discussed and well within the knowledge of skilled artisans at an early stage.”). Effective January 1, 2007, parties may cite nonprecedential opinions, which the Federal Circuit will consider for guidance and persuasive reasoning. *See* FED. CIR. R. 32.1(c)-(d).

372. Durham, *supra* note 370, at 981.

2. The Doctrine of Equivalents

The simultaneous-discovery-and-independent-development defense is also supported by the doctrine of equivalents. According to the Supreme Court in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,³⁷³ the doctrine of equivalents allows a patent owner to prove infringement without proving literal infringement.³⁷⁴ Requiring literal infringement “would leave room for – indeed encourage – the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law.”³⁷⁵

But in *Graver Tank*, “there was no evidence that the defendant had developed its alternative through independent research, as opposed to copying.”³⁷⁶ And because the decision stressed equitable considerations, critics have argued that the doctrine of equivalents ought to “exempt[] the good-faith competitor who designed around the claim language, or the defendant who, without knowledge of the patent, innocently developed a similar product.”³⁷⁷ In *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*,³⁷⁸ the Supreme Court distinguished between a defendant who intentionally copied a plaintiff’s claimed invention and a defendant whose innovation permissibly designed around it, which is precisely the distinction that the proposed defense will recognize.³⁷⁹

373. 339 U.S. 605 (1950).

374. See *supra* notes 166-85 and accompanying text.

375. *Graver Tank*, 339 U.S. at 607.

376. Durham, *supra* note 370, at 986.

377. *Id.* at 987-88 (“Independent research, or the lack of it, is relevant primarily for the light it sheds on the factor of ‘known interchangeability.’”).

378. 520 U.S. 17 (1997).

379. *Id.* at 36 (Before allowing an exception to the doctrine of equivalents, there would need to be a way “to distinguish between the intentional copyist making minor changes to lower the risk of legal action and the incremental innovator designing around the claims, yet seeking to capture as much as is permissible of the patented advance.”); see also *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520 (Fed. Cir. 1995) (en banc) (per curiam) (“Evidence of independent development is highly relevant, however, to refute a patent owner contention that the doctrine of equivalents applies because the accused infringer copied, that is, intentionally appropriated the substance of the claimed invention.”), *rev’d on other grounds*, 520 U.S. 17 (1997); *Int’l Visual Corp. v. Crown Metal Mfg. Co.*, 991 F.2d 768, 774 (Fed. Cir. 1993) (Lourie, J., concurring) (Judge Lourie recognized certain facts that “may not justify the application of the doctrine of equivalents. This might occur if independent research resulted in an invention or product significantly different from what is claimed, albeit one that might perform substantially the same function in the same way to obtain the same result.”).

3. Copyrights and Independent Creation

The proposed defense is also consistent with other intellectual property law, such as the law of copyrights, which is an apropos analogy for many reasons. The Constitutional origins of copyrights and patents are the same.³⁸⁰ The Supreme Court has compared copyright infringement and patent infringement.³⁸¹ Finally, as with patent law, innocent parties may be liable for copyright infringement.³⁸²

Yet, culpability of the copyright infringer may come into play in determining the amount of damages owed to the copyright owner.³⁸³ And “[s]ince copyright law only narrowly protects the expression of an idea, two very similar movies, based on the same idea, may be released at the same time.”³⁸⁴

The Supreme Court has confirmed that “[n]ot all copying, however, is copyright infringement.”³⁸⁵ Even when the plaintiff establishes a prima facie case of copyright infringement,³⁸⁶ the judiciary has created an affirmative defense under copyright law allowing a defendant to rebut the plaintiff’s case

380. U.S. CONST. art. I, § 8, cl. 8; *Hilton Davis*, 62 F.3d at 1531 (Newman, J., concurring) (“The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Art.’”).

381. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950) (“One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement.”); *Hilton Davis*, 62 F.3d at 1528 (same).

382. *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 537 (6th Cir. 2004) (“[C]opyright infringement does not have a scienter requirement.”); *Procter & Gamble Co. v. Colgate-Palmolive Co.*, 199 F.3d 74, 77 (2d Cir. 1999) (“[‘I]nnocent’ copying is still copying.”).

383. *Matthew Bender & Co. v. West Publ’g Co.*, 240 F.3d 116, 123 (2d Cir. 2001) (“The innocent infringement defense can result in the mitigation of actual or statutory damages.”); *Chavez v. Arte Publico Press*, 204 F.3d 601, 607 (5th Cir. 2000) (“Copyright infringement actions, like those for patent infringement, ordinarily require no showing of intent to infringe. Instead, knowledge and intent are relevant in regard to damages.”); *L.A. News Serv. v. Reuters Television Int’l, Ltd.*, 149 F.3d 987, 995-96 (9th Cir. 1998) (Defendants failed to prove innocent infringement and “were not entitled to the reduction in statutory damages.”); *Repp v. Webber*, 132 F.3d 882, 889 (2d Cir. 1997) (“The fact that infringement is ‘subconscious’ or ‘innocent’ does not affect liability, although it may have some bearing on remedies.”).

384. Igor Dubinsky, *The Race to the Box Office Leads to Cinematic Déjà Vu: Modifying Copyright Law to Minimize Rent Dissipation and Copyright Redundancy at the Movies*, 29 WHITTIER L. REV. 405, 453 (2007).

385. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991).

386. *Id.* (“To establish infringement, two elements must be proven: (1) ownership of a valid copyright, and (2) copying of constituent elements of the work that are original.”).

by proving that the infringing product was the result of “independent creation.”³⁸⁷ Independent creation occurs “when a defendant created its own work without copying anything or if it copied something other than plaintiff’s material.”³⁸⁸ A defendant must satisfy its burden by a preponderance of the evidence.³⁸⁹ There are a number of other reasons for courts to consider the defense proposed here. More and more often, the Supreme Court appears to be drawing on the Copyright Act to interpret and apply the Patent Statute, and vice versa. Several cases are noteworthy.

In 2005, the copyright decision in *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*³⁹⁰ asked the question, under what circumstances would a distributor of product that is capable of both lawful and unlawful use be liable as an active inducer or contributory infringer?³⁹¹ The Copyright Act did not expressly allow for contributory or vicarious copyright infringement.³⁹² The Supreme Court had only dealt with secondary liability in one copyright case that had borrowed substantially from the Patent Act.³⁹³ Not surprisingly, the Supreme Court incorporated into its *Grokster* decision an analogy to patent concepts.³⁹⁴ The Court held that those who offer products and services in a manner that induces others to infringe a copyright, as in patent law, can be held secondarily liable on a theory of inducing copyright infringement.³⁹⁵

387. *Mag Jewelry Co. v. Cherokee, Inc.*, 496 F.3d 108, 115 n.8 (1st Cir. 2007); *see also Corwin v. Walt Disney Co.*, 475 F.3d 1239, 1254 (11th Cir. 2007); *Rottlund Co. v. Pinnacle Corp.*, 452 F.3d 726, 732 (8th Cir. 2006); *Taylor Corp. v. Four Seasons Greetings, LLC*, 403 F.3d 958, 967 (8th Cir. 2005); *Positive Black Talk Inc. v. Cash Money Records Inc.*, 394 F.3d 357, 368, 372-73 (5th Cir. 2004); *Fogerty v. MGM Group Holdings Corp.*, 379 F.3d 348, 352 (6th Cir. 2004); *Procter & Gamble*, 199 F.3d at 77.

388. *Rottlund Co.*, 452 F.3d at 732.

389. *Positive Black Talk*, 394 F.3d at 372.

390. 545 U.S. 913 (2005).

391. Defendant *Grokster* distributed software that allowed peer-to-peer sharing of electronic files among computer users. The Plaintiffs, who included movie studios, music recording companies, and songwriters, claimed that *Grokster* intentionally promoted the software as enabling the unauthorized transfer of copyrighted works, and profited from the copyright infringement by their users, who mostly used the software to distribute music and movie files. *Id.* at 919-26.

392. *Id.* at 930 (“One infringes contributorily by intentionally inducing or encouraging direct infringement, and infringes vicariously by profiting from direct infringement while declining to exercise a right to stop or limit it.” (citation omitted)).

393. *Id.* at 930; *see Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 439-42 (1984) (The Supreme Court found support in the Patent Act, relying generally on the Patent Act’s concepts of active inducement and contributory patent infringement and relying specifically on the defense of showing a product to have significant non-infringing uses.).

394. *Grokster*, 545 U.S. at 935-36.

395. *Id.* at 940-41.

And while *Grokster* was a copyright case, the Federal Circuit has since cited it in the patent context.³⁹⁶

In 2006, in a much anticipated and ballyhooed patent decision concerning patent-related injunctions, the Supreme Court in *eBay Inc. v. MercExchange, L.L.C.*³⁹⁷ drew a parallel between the Patent Statute and the Copyright Act.

This approach is consistent with our treatment of injunctions under the Copyright Act. Like a patent owner, a copyright holder possesses “the right to exclude others from using his property.” “A copyright, like a patent, is at once the equivalent given by the public for benefits bestowed by the genius and meditations and skill of individuals, and the incentive to further efforts for the same important objects.” Like the Patent Act, the Copyright Act provides that courts “may” grant injunctive relief “on such terms as it may deem reasonable to prevent or restrain infringement of a copyright.” And as in our decision today, this Court has consistently rejected invitations to replace traditional equitable considerations with a rule that an injunction automatically follows a determination that a copyright has been infringed.³⁹⁸

Hinging its ruling on copyright authority and principles of equity, the Supreme Court for all intents and purposes spelled an end to the nearly century-old presumption that an injunction is almost always rewarded to a plaintiff once it proves patent infringement.³⁹⁹

In 2007, the Supreme Court in *Microsoft Corp. v. AT&T Corp.*⁴⁰⁰ limited the availability of patent damages for activity occurring overseas. Specifically, the Supreme Court held that software sent from the United States to a foreign manufacturer – and then copied by the foreign manufacturer for installation onto computers made and sold abroad – does not infringe AT&T’s speech processing patent.⁴⁰¹ By concluding that the Patent Statute has limited extraterritorial application,⁴⁰² the case bears a remarkably similar outcome to Supreme Court cases decided under the Copyright Act.⁴⁰³

396. *MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.*, 420 F.3d 1369, 1379 (Fed. Cir. 2005).

397. 547 U.S. 388 (2006).

398. *Id.* at 392-93 (citations and internal punctuation omitted).

399. *Id.* at 393 (citing *Cont’l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 422-30 (1908)).

400. 127 S. Ct. 1746 (2007).

401. *Id.* at 1750-53.

402. The Supreme Court resolved the case by a “presumption against extraterritoriality.” *Id.* at 1758.

403. *Quality King Distribs., Inc. v. L’Anza Research Int’l*, 523 U.S. 135, 154 (1998) (Ginsburg, J., concurring) (“Copyright protection is territorial. The rights

4. Trade Secrets and Independent Creation

An analogy to trade secret law offers additional support for the defense. In *Kewanee Oil Co. v. Bicron Corp.*,⁴⁰⁴ for example, the United States Supreme Court recognized that “trade secret law does not forbid the discovery of the trade secret by fair and honest means, e.g., independent creation.”⁴⁰⁵ Moreover, the Court conceded the benefits that run to society from an extension of trade secret protection to patentable subject matter:

[I]t will have a decidedly beneficial effect on society. Trade secret law will encourage invention in areas where patent law does not reach, and will prompt the independent innovator to proceed with the discovery and exploitation of his invention. Competition is fostered and the public is not deprived of the use of valuable, if not quite patentable, invention.⁴⁰⁶

Against that public policy, Congress amended the Patent Statute in 1999 to include an “earlier” invention defense to method-of-doing-business patents.⁴⁰⁷ According to this amendment, one who commercially used a trade secret at least one year before the effective filing date of plaintiff’s business method patent had a personal defense to continue using the invention.

By comparison, the simultaneous-discovery-and-independent-development defense proposed in this article would extend to the defendant’s privies in order to encourage investment in upstart companies and individual inventors. It would extend to all inventions without limitation to business method patents in order to provide symmetry to all inventors. Furthermore, it would extend to discoveries and independent developments that were not yet ready for commercialization through and including the date when plaintiff’s patent issued or application published, so as to avoid thirty months’ corporate waste.⁴⁰⁸ In order to provide fair recompense for the plaintiff, the proposed defense is merely a mitigating factor used by the jury in measuring damages.

granted by the United States Copyright Act extend no farther than the nation’s borders.” (quoting P. GOLDSTEIN, COPYRIGHT §§ 16.0 (2d ed. 1998)); *United Dictionary Co. v. G & C Merriam Co.*, 208 U.S. 260, 264-65 (1908).

404. 416 U.S. 470 (1974).

405. *Id.* at 490.

406. *Id.* at 485.

407. 35 U.S.C. § 273(b) (2000).

408. *See supra* text accompanying notes 307-09, 314-25, 332-62 (discussing the benefits of a simultaneous-discovery-and-independent-development defense).

VI. CONCLUSION

We face an urgent question in a more complex 21st century American economy. How do we add the “fuel of *interest* to the *fire* of genius”⁴⁰⁹ to encourage a plaintiff to innovate without extinguishing the motivation of a potential defendant to do the same?

From one point of view, a patent monopoly – far from constituting a failure that thwarts progress – is one of the greatest assets of ingenuity conceived by the framers of the Constitution, and brings prosperity to our nation.⁴¹⁰ Recognizing this asset led the founders of the United States to create a patent system in 1790⁴¹¹ with a goal of promoting industrial and technological progress⁴¹² and strengthening the national economy. To carry out that goal, the Patent Office was formed in 1802 by the inspired thinking of such notables as James Madison.⁴¹³ For over 200 years that followed, the patent system, administered by the Patent Office, amended from time to time by Congress, and interpreted by the courts, fueled the interest and fired the genius of inventors to innovate in ways that saved or improved lives and fostered the high standard of living in America.

From a different point of view, scientific progress can best bring advances to society when the patent system is “used to promote invention while at the same time preserving free competition.”⁴¹⁴ If innovation of the plaintiff and defendant alike is not promoted, however, then the patent system can beget an ugly thicket that has the opposite effect of discouraging industrial and technological progress and, consequently, weakening the national economy. For instance, innovation may be chilled when a defendant stands to lose thirty months’ investment⁴¹⁵ of substantial money and labor intensive research and development because, unbeknownst to it, a plaintiff – owing to

409. LINCOLN, *supra* note 88, at 11.

410. *See supra* notes 84-105 and accompanying text.

411. *Id.*

412. U.S. CONST. art. I, § 8, cl. 8.

413. KENNETH W. DOBYNS, *THE HISTORY OF THE EARLY PATENT OFFICES: A PATENT OFFICE PONY* 41 (1997).

414. *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 230-31 (1964). Chief Justice Marshall, in *Grant v. Raymond*, explained the basic judicial policy of justice and equity that governs the patent system: “To promote the progress of useful arts, is the interest and policy of every enlightened government. It entered into the views of the framers of our constitution. . . . This subject was among the first which followed the organization of our government.” 31 U.S. 218, 241-42 (1832).

415. In some cases, as with innovator drug companies, the time and investment is much longer than this. Reza Bagerian, *The Preserve Access to Affordable Generics Act: Will Congress’s Response to Reverse Payment Patent Settlements Enhance Competition in the Pharmaceutical Market?*, 7 J. MARSHALL REV. INTELL. PROP. 150, 150 (2007) (“It takes an average of 10–15 years and more than \$800 million . . . to bring a new medicine to consumers.”) (citation omitted).

the secrecy⁴¹⁶ of a patent application – has an earlier effective filing date. The unfortunate result is corporate waste. The price paid is less money for research and development. In the final analysis, society loses out on innovative products and services.

As the great radio controversy demonstrated, Marconi wielded an invalid patent for decades against his competitors, while Tesla (unable to fund patent litigation) watched from the sidelines.⁴¹⁷ Today, more than ever before, the cost of patent litigation is likely to chill any substantive challenge to invalid patents,⁴¹⁸ while the public perception that the Patent Office is “issuing too many low quality patents has universal acceptance.”⁴¹⁹

Moreover, when a reasonable royalty as the measure of patent damages loses its connection to the Patent Statute’s original intent of guaranteeing a minimum compensation for patent infringement, patentees and patent trolls may allege damages that grossly surpass any reasonable value of their inventive contribution to science. Unmoored from a guaranteed minimum compensation, a reasonable royalty allows a plaintiff to extort a license from the accused infringer that far exceeds what would be achieved in a truly hypothetical arm’s length negotiation.⁴²⁰ Among the business challenges facing America, and perhaps as one of the leading causes for the continued decline in our nation’s industrial base, the abuse of the patent system by patentees and patent trolls asserting low quality patents has become an unbearable drag on the lofty goal of supporting and rewarding all innovators.⁴²¹

The question becomes how to recognize – and move to action – the many inventors who shape a scientific advancement such that discoveries are not “lost to society.”⁴²²

Urging a middle ground, the present article proposes that courts consider a defense that assigns some value to a simultaneous discovery and independent development by the defendant in assessing damages to be awarded to a plaintiff. A middle ground would ensure that the plaintiff is fairly compensated for any infringement without deterring innovation, discouraging research and development, and impairing healthy competition by a defendant.

416. 35 U.S.C. § 122(a)-(b)(1) (2000).

417. *See supra* text accompanying notes 44-83.

418. *See supra* text accompanying notes 117-39.

419. Homer, *supra* note 17, at 275; *see also* Kesan & Gallo, *supra* note 84, at 63 & nn.2, 4.

420. Bensen & White, *supra* note 23, at 3 (“As a result, reasonable royalties have too often become the kind of punitive measure that patent law generally eschews.”); *see also* Homer, *supra* note 17, at 264 (“[P]atent litigation has garnered attention from the mainstream press thanks to some impressive damage awards. To many, the awards bear little relation to the value of the patent.” (footnote omitted)).

421. *Topliff v. Topliff*, 145 U.S. 156, 171 (1892) (“The object of the patent law is to secure to the inventors [exclusivity] of what they have actually invented or discovered.”).

422. CHENEY, *supra* note 33, at 74.

So that the defendant cannot claim an apocryphal creation, the defendant should demonstrate that it actually used, actively investigated, and made substantial preparation of the products or services it claims to have simultaneously discovered and independently developed.

The line between rewarding a plaintiff for its innovation without reducing a defendant's incentive to innovate may not always be distinct, where one side is eligible for the defense and the other side ineligible. When faced with the decision of how to draw the line, courts are uniquely equipped to balance the competing policies with a vision that builds on the goal of promoting the sciences by fueling the imagination, productivity, and competitive zeal of the plaintiff and defendant alike.⁴²³ In embracing a defense that allows a jury to consider a defendant's simultaneous discovery and independent development and to reach a more balanced calculation of a reasonable royalty, courts accomplish this objective. Guided by these principles, the defense rewards all inventors, creates an incentive to invest in research and development that ultimately benefits society, and releases the innovation of the American people.

Indeed, while patent law has evolved to accommodate changes in technological and industrial progress over the past two centuries, one of the inexorable objectives of the patent system was based on justice, wherein all inventions and discoveries are to be encouraged, not penalized. If justice is to be truly achieved, and new technologies to be genuinely advanced in the new millennium, the patent system must be viewed as a two-way street on which both the plaintiff and defendant are allowed to travel.

Accordingly, the simultaneous-discovery-and-independent-development defense would motivate all inventors and harm no one. The patentee would still receive a right of exclusion as a "reward for inventions,"⁴²⁴ and the proposed defense would guarantee to the plaintiff those damages that are adequate to compensate for infringement, which shall not be less than a reasonable royalty.⁴²⁵ On the other hand, to deny a defendant a correction in the calculated damages would frustrate constitutional objectives of energizing the inventive spirit, by punishing an innocent defendant who simultaneously discovered and independently developed the claimed invention.

Therefore, the simultaneous-discovery-and-independent-development defense recognizes the costs incurred by the defendant in terms of time, re-

423. *Cf. In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) (In raising the bar on the standard of proof necessary to establish willful infringement for recovering enhanced damages, the Federal Circuit "leave[s] it to future cases to further develop" the new, higher standard.); *see also id.* at 1385 (Newman, J., concurring) ("Although new uncertainties are introduced by the court's evocation of 'objective standards' for such inherently subjective criteria as 'recklessness' and 'reasonableness,' I trust that judicial wisdom will come to show the way, in the common-law tradition.").

424. *Universal Oil Co. v. Globe Co.*, 322 U.S. 471, 484 (1944).

425. 35 U.S.C. § 284 (2000).

search, and development in the calculation of a reasonable royalty. The defense emulates real-life royalty negotiations. And the defense fosters innovation by creating a stimulus to invent that will have a positive effect on society through the introduction of new products and services into the economy, increased employment in those evolving industries, and an enriched quality of life in America.