

**PATENT NONUSE AND THE ROLE OF PUBLIC INTEREST AS A
DETERRENT TO TECHNOLOGY SUPPRESSION**

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*“The Constitution of the United States has limited [monopolies] to two cases — the authors of Books, and of useful inventions, in both which they are considered as compensation for a benefit actually gained to the community as a purchase of property which the owner might otherwise withhold from public use.”*¹

I. INTRODUCTION

In Jack Kerouac's best known novel, *On the Road*, the character, Dean Moriarty, in a fit of frustration voices the widely held belief that a number of useful inventions are intentionally kept from the public by those who own them:

These bastards have invented plastics by which they could make houses last *forever*. And tires. Americans are killing themselves by the millions every year with defective rubber tires that get hot on the road and blow up. They could make tires that never blow up. Same with tooth powder. There's a certain gum they've invented and they won't show it to anybody that if you chew it as a kid you'll never get a cavity for the rest of your born days. Same with clothes. They prefer making cheap goods so's everybody'll have to go on working and punching time-clocks and organizing themselves in sullen unions and floundering around²

The number of patents issued annually in recent years has increased substantially.³ Management of intellectual property is now regarded as a core competence in the information age economy.⁴ A firm's strategic management of its patent rights can significantly enhance the firm's success in its market by establishing a proprietary advantage, improving financial performance, and enhancing overall competitive-

1. James Madison, *Monopolies, Perpetuities, Corporations, Ecclesiastical Endowments*, HARPER'S MONTHLY MAGAZINE, Mar. 1914, at 489; see also Elizabeth Fleet, *Madison's "Detached Memoranda,"* 3 WILLIAM & MARY Q. 534, 551 (1946).

2. JACK KEROUAC, *ON THE ROAD* 149 (The Viking Press 1958) (1957).

3. See Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standards-Setting*, in INNOVATION POLICY AND THE ECONOMY 119 (Adam B. Jaffe et al. eds., 2001) (describing the “flood of patents currently being issued by the PTO”).

4. See generally Adam B. Jaffe, *The U.S. Patent System in Transition: Policy Innovation and the Innovation Process*, 29 RES. POL'Y 531 (2000) (surveying recent changes in U.S. patent policy and practice and their impact on the processes of technological change).

ness.⁵ More firms are said to be learning that patents, once issued, become a sunk cost⁶ that can be leveraged as a source of licensing revenue or exploited as potent competitive weapons.⁷ Leveraging a patent portfolio may increase earnings and attract additional capital as investors look at the firm's patent royalty earnings potential.⁸ This suggests that a firm will exploit its patents, even if the firm itself is not using them, by licensing them to other firms. However, patents may also be competitive weapons. For instance, in 1991, Minolta was ordered to pay Honeywell \$127.5 million in damages after a court ruled that Minolta had infringed Honeywell's autofocus camera patent, though Honeywell was not using it.⁹ Indeed, various studies have estimated that approximately forty to ninety percent of issued patents are not used or licensed by the patentee.¹⁰

Patent nonuse¹¹ occurs when a patentee fails to commercialize its patent, such as when the patent has no present commercial value or

5. See Kevin G. Rivette & David Kline, *Discovering New Value in Intellectual Property*, 78 HARV. BUS. REV. 54, 56 (2000); see also KEVIN G. RIVETTE & DAVID KLINE, REMBRANDTS IN THE ATTIC: UNLOCKING THE HIDDEN VALUE OF PATENTS (2000).

6. Sunk costs are those capital investments that a new firm must bear to gain entry into a market. See William Baumol & Robert Willig, *Fixed Costs, Sunk Costs, Entry Barriers, and Sustainability of Monopoly*, 96 Q. J. ECON. 405, 406-07 (1981).

7. See Rivette & Kline, *supra* note 5, at 59; see also Michael Kenward & Sarita Kendall, *When the Finest Minds Are Up for Sale: Intellectual Property Licensing*, FIN. TIMES, July 4, 2001, at 1 ("Across industry, large companies are realising that they are sitting on ideas that could be of value to someone somewhere, even if they are of little use in house. Those ideas are increasingly being put up for sale.").

8. See WESLEY M. COHEN ET AL., PROTECTING THEIR INTELLECTUAL ASSETS: APPROPRIABILITY CONDITIONS AND WHY U.S. MANUFACTURING FIRMS PATENT (OR NOT), (Nat'l Bureau of Econ. Research, Working Paper No. 7552, 2000) (assessing the importance of patenting in various industries).

9. See Rivette & Kline, *supra* note 5, at 65.

10. See PETER MEINHARDT, INVENTIONS, PATENTS AND MONOPOLY 189 (1946) ("Probably 80 to 90 percent of all patented inventions are not worked in practice."); Roger L. Beck, *Competition for Patent Monopolies*, 3 RES. L. & ECON. 91, 98 (1981) (40-50% of patents not used); Joseph Rossman & Barkev S. Sanders, *The Patent Utilization Study*, in NURTURING NEW IDEAS: LEGAL RIGHTS AND ECONOMIC ROLES 106, 126 (L. James Harris ed., 1969) (only 54% of patents used); Barkev S. Sanders, *Patterns of Commercial Exploitation of Patented Inventions by Large and Small Corporations*, 8 PAT., TRADEMARK, & COPYRIGHT J. RES. & EDUC. 51, 63 (1964) (54% of patents commercially utilized). For a detailed, though somewhat dated, analysis of patent use rates, see Norman J. Gharrity, *The Use and Non-Use of Patented Inventions* (1988) (unpublished Ph.D. dissertation, Johns Hopkins University) (on file with author).

11. A patent that is not used by the patentee, or licensed to another for use, is sometimes referred to as a "paper patent" or "sleeping patent." See Dayton R. Stemple, *Nonuser of Paper Patents*, 34 J. PAT. OFF. SOC'Y 23, 23 (1952) (citing cases referring to "paper patents"); Richard J. Gilbert & David M. G. Newberry, *Preemptive Patenting and the Persistence of Monopoly*, 72 AM. ECON. REV. 514, 517 (1982) ("A sleeping patent is an invention that is not put to commercial use.").

when attempts to license it have been unsuccessful.¹² Patent nonuse may have anticompetitive purposes as well, and will lead to technology suppression when a patented product or process is deliberately withheld from the market by the patentee.¹³ Like the nonused Honeywell patent, and unlike the amusing diatribe in Kerouac's *On the Road*, technology suppression is not simply a matter of anecdotal fiction or folklore.¹⁴ It is a historical and contemporary reality that extends beyond obscure inventions to well-known and widely-used products.¹⁵

There is evidence to suggest that products as obscure as artificial caviar and as important as photocopiers have been strategically shelved.¹⁶ The Romanoff Caviar Company developed synthetic caviar as a defensive marketing weapon against a similar product developed

12. See Julie S. Turner, Comment, *The Nonmanufacturing Patent Owner: Toward a Theory of Efficient Infringement*, 86 CAL. L. REV. 179, 182 n.12 (1998).

13. See Richard Dunford, *The Suppression of Technology as a Strategy for Controlling Resource Dependence*, 32 ADMIN. SCI. Q. 512, 513 (1987). Admittedly, this definition is broad; however, defining patent suppression with particularity is difficult. For example, one researcher considered and rejected the following two definitions as overinclusive:

(1) Patent suppression exists if the invention is not used by the owner of the patent but would have been used by others if not protected by patents. Operational evidence is infringement suits and outright refusal to license on any terms.

(2) Patent suppression exists if an invention better than the one now used in production is available but not used. Operational evidence would be comparisons of costs for process inventions and demand estimates for new products.

Ruth L. Rasch, *The Suppression of Patented Inventions* 11 (1960) (unpublished Ph.D. dissertation, Johns Hopkins University) (on file with author). For other studies of patent nonuse and suppression, see FLOYD L. VAUGHAN, *THE UNITED STATES PATENT SYSTEM: LEGAL AND ECONOMIC CONFLICTS IN AMERICAN PATENT HISTORY* 227–60 (1956); George E. Frost, *Legal Incidents of Non-Use of Patented Inventions Reconsidered*, 14 GEO. WASH. L. REV. 273 (1946); Alexander Morrow, *The Suppression of Patents*, 14 AM. SCHOLAR 210–19 (1945).

14. *But see* ARMEN ALCHIAN & WILLIAM R. ALLEN, *EXCHANGE AND PRODUCTION: COMPETITION, COORDINATION, AND CONTROL* 326 (1983) (referring to patent suppression as “a commonplace of modern folklore”).

15. A practice somewhat similar to suppression is submarine patenting, which delays issuance of a patent until the inventor can gain a competitive advantage. Although the publication of patent applications has virtually eliminated submarine patenting, the practice occurs when an inventor files an application with broad claims, files a series of continuing applications to keep the application “submerged” in the Patent Office, and then suddenly “surfaces” the patent through issuance and threatens infringement when another firm innocently begins using the heretofore unpatented idea. See Steve Blount, *The Use of Delaying Tactics to Obtain Submarine Patents and Amend Around a Patent that a Competitor Has Designed Around*, 81 J. PAT. & TRADEMARK OFF. SOC'Y 11, 13 (1999).

16. For a summary of other inventions that have been suppressed, see JOHN M. BLAIR, *ECONOMIC CONCENTRATION: STRUCTURE, BEHAVIOR AND PUBLIC POLICY* 230–31 (1972); VAUGHAN, *supra* note 13, at 231–48, 256–59.

in the former Soviet Union. Romanoff's product would have sold for one-fourth the price of real caviar, but apparently was never marketed because Romanoff did not want to compete with itself in the sale of real caviar in the small U.S. market.¹⁷ Similarly, Xerox accumulated patents in order to create a thicket around its plain paper photocopier technology and then allegedly refused to use or license those patents. When the company was sued regarding this practice, the court perceived no antitrust violation as a result of Xerox's lawful exercise of its patent rights.¹⁸

There have been other instances of attempted patent suppression that further demonstrate the issue is real. In 1969, the Justice Department filed an antitrust suit against the Automobile Manufacturers Association alleging that its members conspired to suppress "competition in the research, development, manufacture, and installation of motor vehicle air pollution control equipment, and in the purchase from others of patents and patent rights."¹⁹ The automobile manufacturers had agreed to "delay the installation of known and/or readily producible air pollution control devices" and to "withhold offering for public use developed devices for air pollution control."²⁰ After extensive negotiations, the Association and its members reached a settlement with the government by which they agreed to provide a royalty-free license under all of their patents to any applicant interested in developing air pollution control technology.²¹

In another example of patent suppression, researchers in the 1960s at Liggett & Myers Company believed they had discovered how to remove most of the carcinogenic agents in cigarette smoke. Though Liggett believed the potential product was commercially viable, the "safer" cigarette, a product cryptically known as the "XA," was never marketed and the research was suppressed.²² Liggett alleg-

17. See *Ersatz Caviar*, BUS. WK., June 28, 1976, at 51.

18. See *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981). For a discussion of the *SCM* case, see Gerald Sobel, *The Antitrust Interface with Patents and Innovation: Acquisition of Patents, Improvement Patents and Grant-Backs, Non-Use, Fraud on the Patent Office, Development of New Products and Joint Research*, 53 ANTITRUST L.J. 681, 682 (1984).

19. *United States v. Auto. Mfrs. Ass'n, Inc.*, 307 F. Supp. 617, 618 (C.D. Cal. 1969); see also Eileen Shanahan, *U.S. Charges Auto Makers Plot to Delay Fume Curbs*, N.Y. TIMES, Jan. 11, 1969, at A1; Bruce W. Kaufman et al., *Suppressing Technology: The Automobile Air Pollution Case*, 3 ANTITRUST L. & ECON. REV., Spring 1970, at 111 (1970).

20. *In re Multidistrict Vehicle Air Pollution*, 367 F. Supp. 1298, 1303 (C.D. Cal. 1973).

21. *United States v. Motor Vehicle Mfrs. Ass'n*, 643 F.2d 644, 645 (9th Cir. 1983) (entering a sealed consent judgment).

22. See First Am. Compl., ¶ 112, *City & County of San Francisco v. Philip Morris, Inc.* (N.D. Cal. 1996) (No. C96-2090-DLJ), available at <http://stic.neu.edu/ca/sf/1stamcomplaint.htm> (last visited Apr. 5, 2002). With the assistance of a consulting firm, Liggett began its research by repeating studies in mice previously performed

edly did so for two reasons. First, disclosing the feasibility of a safer cigarette would imply that existing cigarettes were not safe. Second, Philip Morris threatened Liggett with retaliation if Liggett violated the industry agreement not to disclose negative information on smoking and health. According to Liggett's Assistant Research Director, Dr. James Mold, Liggett's president was allegedly "told by someone in the Philip Morris Company that if we tried to market such a product that they would clobber us."²³

During the project, Liggett attempted to insulate the XA research. According to Dr. Mold, after 1975, "all meetings that we had regarding this project were to be attended by a lawyer All paper that was generated . . . [was] to be directed to the Law Department."²⁴ Lawyers even collected all notes after each meeting.²⁵ Eventually Liggett obtained a patent for the XA cigarette.²⁶ The patent application claimed the new cigarette reduced the risk of cancer in mice, leading to stories in the media that Liggett admitted smoking caused cancer. Liggett responded by issuing a press release stating: "Liggett and the cigarette industry continue to deny, as they have consistently, that any conclusions can be drawn relating such test results on mice in laboratories to cancer in human beings. It has never been established that smoking is a cause of human cancer."²⁷ At the time Liggett made the statement, they had spent a total of \$10 million on research involving mice, some of it to develop the XA cigarette.²⁸

Despite XA's significance, the company lawyers were allegedly responsible for terminating the project and ordering Dr. Mold not to publish the results of any research behind the safer cigarette.²⁹ Ironi-

by a researcher named Dr. Wynder. His findings were confirmed, and in 1968, Liggett began "a tobacco additive program designed to reduce or eliminate the tumorigenic activity of cigarette smoke." *Id.* at ¶ 113. By 1979, Liggett had declared the work a success and patented it. Internal corporate documents state: "Briefly, as a result of 20 years effort in cooperation with [the consulting firm], we have developed a cigarette system which produces smoke of reduced biological activity [T]here can be no argument that the use of the additives has resulted in a product with lower carcinogenic effects." *Id.* at ¶ 113.

23. *Id.* at ¶ 115; see also TARA PARKER-POPE, CIGARETTES: ANATOMY OF AN INDUSTRY FROM SEED TO SMOKE (2001); Tom Watkins, *Company Lawyer Says Tobacco Industry Quashed Safer Cigarette*, CNN INTERACTIVE (Nov. 11, 1998), at <http://www.cnn.com/HEALTH/9811/11/safer.cigarette>; Myron Levin, *Trial May Shed Light on Demise of "Safer" Cigarette*, L.A. TIMES, Aug. 27, 1998, at A1, available at <http://no-smoking.org/august98/08-27-98-3.html>.

24. First Am. Compl., *supra* note 22, at ¶ 116.

25. See *id.*

26. See *id.* at ¶ 119.

27. *Id.*

28. See *id.* at ¶ 120.

29. See *id.* at ¶ 117. Only an abstract of the paper, modified by the legal department and without Dr. Mold's name, was published. When Dr. Mold was asked why Liggett never marketed the safer cigarette, he explained: "[Management circles] felt that such a cigarette if put on the market would seriously indict them for having sold

cally, perhaps in response to recent admissions by the tobacco industry regarding the carcinogenic effects of smoking, Liggett announced in 2001 its plans to finally introduce a safer cigarette product onto the market.³⁰

More recently, there was a case of possible suppression involving erythropoietin (“EPO”). EPO is extremely effective in encouraging the development of oxygen-carrying red blood cells and has saved the lives of many anemic people, including premature infants.³¹ A recombinant, bio-engineered version of EPO is manufactured by Amgen, which holds the major patents to EPO. Treatment is very expensive because each patient needs very high levels of EPO, which, without a naturally occurring binding factor, is immediately excreted into the urine.³²

Gisella Clemons, a scientist at the Lawrence Berkeley Laboratory, developed a protein binding factor that allowed EPO to remain in the body instead of being excreted immediately, thereby increasing the uptake of EPO by a factor of ten- to fifty-fold. The Laboratory patented the discovery in April of 1997.³³

Prior to the patent’s issuance, the binding factor was offered to drug companies, including Amgen.³⁴ Martha Luehrmann, who works on technology licensing for the Lawrence Berkeley Laboratory, commented unofficially:

Amgen wasn't interested because IT WOULD DECREASE THEIR LUCRATIVE MARKET FOR EPO. People would need much less EPO per dose, and Amgen didn't trust that they could make up the shortfall in selling more widely to people who at the present time can't afford the drug. Other drug companies weren't interested because they would have to combine the binding protein with EPO, and all the rights to EPO were in the hands of Amgen. So, a wonderful advance that could save hundreds of thousands of children from anemia and death stays on the

other types of cigarettes that didn't contain this, for example. Or that they were carrying on this biological research at the same time saying it meant nothing.” *Id.* at ¶¶ 117–18.

30. Bob Williams, *Liggett Group May Roll Out Safer Cigarette by Summer*, *NANDO TIMES* (Feb. 14, 2001), at <http://archive.nandotimes.com/noframes/story/0,2107,500309793-500497854-503500715-0,00.html>.

31. See Email from Martha Luehrman to Jamie Love (April 7, 1998), *reprinted in* Posting of Jamie Love, love@cptech.org, to info-policy-notes@essential.org (Apr. 7, 1998), available at <http://lists.essential.org/1998/info-policy-notes/msg00013.html> (last visited Apr. 5 2002).

32. See *id.*

33. See *id.*

34. See *id.*

shelf because the patent system protects a company that doesn't want to see any risk to its bottom line.³⁵

Amgen carried out the research behind EPO under the Orphan Drug Act's³⁶ special protections for drug companies. This legislation was enacted in 1983 to spur the development of drugs for rare diseases, which typically have a limited market. The Act gives companies substantial tax credits for costs incurred during human drug trials, and, more importantly, it gives companies seven years to market their product exclusively.³⁷ Accordingly, another controversial issue involving EPO is what obligation biotechnology companies have, if any, to act in the public interest when portions of their inventions stem from government-funded research programs. Since Amgen was awarded orphan drug status for EPO, other companies may have been discouraged from developing their own versions of erythropoietin simply because Amgen had seven years to build on its research and gain further competitive advantage.³⁸

For the most part, the law has failed to consider seriously or to respond to the problem of technology suppression. When the courts have acted, they have ruled inconsistently and have most often held that the intentional nonuse of a patent by its owner or licensee is neither a violation of antitrust laws nor a misuse of the patent. Often, it is difficult for courts to detect suppression because it is more easily understood in hindsight. More relevant, however, is the nature of patent rights and the likelihood that the patent system itself has been used to facilitate suppression.

35. *Id.*

36. Pub. L. No. 97-414, 96 Stat. 2049, 2049-56 (1983) (codified as amended in scattered sections of 21 U.S.C., 26 U.S.C., and 42 U.S.C.).

37. *See id.*

38. *See* Kristi Coale, *Nader Takes Biotech Patent to Task*, WIRED (Apr. 17, 1998), at <http://www.wired.com/news/news/technology/story/11740.html>. A related problem that has drawn the attention of the Federal Trade Commission is patent infringement settlement agreements between pharmaceutical manufacturers and the manufacturers of generic drugs. The Hatch-Waxman Act, Pub. L. No. 98-417, 98 Stat. 1585 (1984) (codified as amended in scattered sections of 15 U.S.C., 21 U.S.C., 28 U.S.C., 35 U.S.C., and 42 U.S.C.), allows a firm to seek approval from the Food & Drug Administration ("FDA") to market a generic version of a brand-name drug whose patent has not yet expired. If the generic firm seeks to do so, it must certify to the FDA that the existing patent is invalid or is not infringed by the generic version. When a number of generic drug makers did this, they were met with patent infringement suits by the branded manufacturers, triggering a 30-month waiting period under the Hatch-Waxman Act. Just before the expiration of this period, several branded manufacturers paid the generic drug makers millions of dollars to delay bringing their products to market in competition with the name-brand drugs. *See* David A. Balto, *Pharmaceutical Patent Settlements: The Antitrust Risks*, 55 FOOD & DRUG L.J. 321 (2000).

This Article explores the phenomenon of patent suppression, examines possible reasons for its occurrence, and discusses potential methods of deterring patent nonuse in general, and technology suppression in particular. First, public reason should be employed to deter suppressive activity by requiring that all patentees file, as a matter of public record, an annual statement that simply indicates whether their patents are being used and, if not, the reasons that the patents are not being used or licensed to others for use.³⁹ Second, patent nonuse should be given greater evidentiary weight when it is detected as part of other anticompetitive conduct made unlawful under the federal antitrust laws.⁴⁰ Finally, the remedy of compulsory licensing should be more readily employed when important public interests are at stake, such as promoting technology competition and innovation or protecting public health and security. However, the public interest must be carefully defined and must be capable of changing as the current economic and social context requires.⁴¹

II. PATENTS, PROPERTY RIGHTS, AND NONUSE

Markets for inventions that embody intellectual investments are characterized by an externality known as the “public goods problem.” Public goods are considered to be nonexcludable because it is difficult to prevent “free riders” — those who do not pay for the goods — from consuming them. Public goods are also subject to nonrivalrous competition in that additional consumers of the goods will not deplete the supply available to others. Private markets tend to undersupply public goods because producers cannot reap the marginal value of their investment in providing them.⁴² Thus, a government subsidy in the form of a property right may be necessary to stimulate the desired production of new and useful inventions.⁴³

By transforming ideas into an exclusive property right, patents allow inventors to derive profit from their efforts and ideas.⁴⁴ The law

39. See *infra* Part IV.A.

40. See *infra* Part IV.B.

41. See *infra* Part IV.C.

42. This is sometimes referred to as the appropriability problem. Patent protection allows the inventor to capture a larger portion of consumer and producer surplus generated by the invention than otherwise possible. See WARD BOWMAN, JR., PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL 23–28 (1973).

43. See PAUL SAMUELSON & WILLIAM NORDHAUS, ECONOMICS 48–49, 713–15 (12th ed. 1985); see also Kenneth Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609 (1962).

44. In the United States, patents and copyrights were often referred to as “monopolies” in the eighteenth century, but over time this conception was replaced by one based on property. See generally William W. Fisher III, *The Growth of Intellectual Property: A History of the Ownership of Ideas in the United States*, in EIGENTUM-

provides patent protection to inventions that meet certain criteria. The basic requirements are that the invention be of patentable subject matter, which is also novel, useful, and nonobvious.⁴⁵ Patents are intended to stimulate invention and promote development and commercialization of inventions, while, at the same time, encouraging inventors to disclose their inventions.⁴⁶ They represent a balancing of society's interest in promoting free competition against its interest in encouraging innovation⁴⁷ by rewarding inventors with the "right to exclude others from making, using, offering for sale, or selling the invention"⁴⁸ for a term of twenty years.⁴⁹ This creates an incentive for further innovation and optimizes social welfare by diffusing knowledge through disclosure of the invention and through the patentee's use or license to others.⁵⁰

Consistent with historical antecedents that the patentee must work the patent to maintain its validity,⁵¹ in a few early decisions, federal courts attempted to precondition an infringement remedy on the patentee's use of the patent.⁵² In *Hoe v. Knap*,⁵³ for instance, the court

SKULTUREN IM VERGLEICH (Vandenhoeck & Ruprecht eds., 1999), available at <http://eon.law.harvard.edu/property/history.html> (last visited Apr. 4, 2002). For instance, in an exchange of letters between Madison and Jefferson involving a discussion of patents and copyrights, both referred to these exclusive rights as "monopolies." See *Letter from Thomas Jefferson to James Madison* (July 31, 1788) and *Letter from James Madison to Thomas Jefferson* (Oct. 17, 1788), in *THE REPUBLIC OF LETTERS* 543, 545, 566 (James M. Smith ed., 1995).

45. See 35 U.S.C. § 101 (1994); 35 U.S.C. §§ 102, 103 (1999).

46. Patent protection has also been justified as a natural right in the Lockean tradition, stemming from the belief that an inventor is entitled to the fruits of his or her labors. For a historical treatment of this position, see Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550–1800*, 52 *HASTINGS L.J.* 1255 (2001). But see Nuno Pires de Carvalho, *The Primary Function of Patents*, 2001 *U. ILL. J.L. TECH. & POL'Y* 25 (2001) (arguing patents are metering devices that allow society to assess the value of inventions through market forces).

47. Innovation can be defined as "(a) the process of getting new tools into a given social environment, or (b) the new tools themselves." *THE PROCESSES OF TECHNOLOGICAL INNOVATION* 10 (Louis G. Tornatzky & Mitchell Fleischer eds., 1990). The life cycle of an innovation is often thought of in terms of phases or stages: basic research, applied research, development, testing, manufacturing, and dissemination. From the standpoint of the user, the stages include: awareness, adoption, implementation, and routinization. These processes need not be linear. See *id.* at 27–32.

48. 35 U.S.C. § 154(a)(1) (1994).

49. See § 154(a)(2).

50. Patent licensing increases the rents available to the patentee without reducing the patentee's property rights.

51. In England, the Statute of Monopolies required patentees to practice their inventions. See Mossoff, *supra* note 46, at 1278 (citing E. Wyndham Hulme, *On the History of Patent Law in the Seventeenth and Eighteenth Centuries*, 18 *L.Q.R.* 280, 281–82 (1902)).

52. Courts did not recognize the "right of suppression" until the case of *Heaton-Peninsular Button Fastener Co. v. Eureka Specialty Co.*, 77 F. 288 (6th Cir. 1896). See *TEMP. NAT'L ECON. COMM., 76TH CONG., INVESTIGATION OF CONCENTRATION OF*

refused to enjoin an infringer of a printing press patent, stating: “I think, under a patent which gives a patentee a monopoly, he is bound either to use the patent himself or allow others to use it on reasonable or equitable terms.”⁵⁴ In another case, *Ewart Manufacturing Co. v. Baldwin Cycle-Chain Co.*,⁵⁵ the plaintiff sued for infringement of its patent on a drive chain that it had never made or used. The defendant argued that the plaintiff could not enforce its patent because it had not complied with a requirement that patented articles be marked with a patent notice bearing the date of patenting. The court sustained a demurrer to the suit on this ground:

[A] patent for an invention which the patentee refuses to make available himself, and refuses to allow others to make useful, is not within the spirit of the provision of the constitution which assigns as a reason for securing exclusive rights to authors and inventors a desire “to promote the progress of science and the useful arts,” and . . . patents so held are entitled to scant recognition at law, though necessarily to some, but to none whatever in equity. They are not, as claimed by the plaintiff, the equivalent of a highly-cultivated field, surveyed, plotted, and fenced in by the owner; but they constitute, for all useful purposes, a waste from which the public is sought to be excluded for reasons of which equity takes no cognizance.⁵⁶

In contrast, when the United States Supreme Court first addressed the issue of patent nonuse in *Continental Paper Bag Co. v. Eastern Paper Bag Co.*,⁵⁷ it diverged from these rulings and instead validated the ability to suppress a patent. In *Continental Paper Bag*, the plaintiff sued to enjoin the defendant’s infringement of a patent on an improved paper bag manufacturing machine. The plaintiff did not use the patent because it had a substantial investment in machines that could not be improved or be replaced without great expense. Moreover, the plaintiff declined to license the patent to any of its competitors. As a defense to infringement, the defendant asserted that the

ECONOMIC POWER, MONOGRAPH NO. 31, at 58–62 (S. Comm. Print 1941) (discussing the courts’ approach to suppression).

53. 27 F. 204 (N.D. Ill. 1886).

54. *Id.* at 212; accord *Campbell Printing-Press & Mfg. Co. v. Duplex Printing-Press Co.*, 86 F. 315 (E.D. Mich. 1898) (nonuse precludes injunctive relief for infringement).

55. 91 F. 262 (D. Mass. 1898).

56. *Id.* at 265.

57. 210 U.S. 405 (1908).

plaintiff should be denied injunctive relief because it was holding the patent in nonuse.⁵⁸ The Supreme Court rejected this argument:

[C]an it be said, as a matter of law, that a non-use was unreasonable which had for its motive the saving of the expense that would have been involved by changing the equipment of a factory from one set of machines to another? And even if the old machines could have been altered, the expense would have been considerable. As to the suggestion that competitors were excluded from the use of the new patent, we answer that such exclusion may be said to have been of the very essence of the right conferred by the patent, as it is the privilege of any owner of property to use or not use it, without question of motive.⁵⁹

The issue of patent suppression again came before the Supreme Court in *Special Equipment Co. v. Coe*,⁶⁰ where the plaintiff's application for a patent on a subcombination for a fruit preparation apparatus was rejected by the patent office. The Court of Appeals found that the patent should not have been issued since the plaintiff had no intention of using or licensing the subcombination apparatus and was seeking the patent only to protect the underlying machine.⁶¹ However, relying on *Continental Paper Bag*, the Supreme Court reversed, holding that it is "legitimate to use a patent on the subcombination as a means of preventing appropriation by others of petitioner's more important complete invention."⁶²

Although the majority of the members of the Court found the suppression valid, Justice Douglas, writing for the dissent in a five-to-four decision, inveighed against the notion that patents should be treated as private property in nonuse cases.⁶³ Citing the purpose of patent protection under the Constitution,⁶⁴ he wrote:

58. *Id.* at 427.

59. *Id.* at 429; accord *Lewis Blind Stitch Mach. Co. v. Premium Mfg. Co.*, 163 F. 950 (8th Cir. 1908) (rejecting plaintiff's nonuse of its patent for improvements in blind stitching sewing machines as a defense to infringement claim); *Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 599 (Fed. Cir. 1992) ("patent property rights, necessarily including the right 'to license and exploit patents,' fall squarely within both classical and judicial definitions of protectable property").

60. 324 U.S. 370 (1945).

61. For the Court of Appeals ruling, see *Special Equip. Co. v. Coe*, 144 F.2d 497 (D.C. Cir. 1943).

62. *Special Equip. Co.*, 324 U.S. at 376.

63. See *id.* at 380-85.

64. U.S. CONST. art. I, § 8, cl. 8.

It is a mistake therefore to conceive of a patent as but another form of private property. The patent is a privilege “conditioned by a public purpose.” . . . The result is that suppression of patents has become commonplace. Patents are multiplied to protect an economic barony or empire, not to put new discoveries to use for the common good. . . . One patent is used merely to protect another. . . . It is difficult to see how that use of patents can be reconciled with the purpose of the Constitution “to promote the progress of science and the useful arts.”⁶⁵

Justice Douglas concluded that “[t]he right of suppression of a patent came into the law over a century after the first patent act was passed [I]t is time to be rid of that rule. It is inconsistent with the Constitution and the patent legislation which Congress has enacted.”⁶⁶

The Supreme Court also rejected the assertion that a patent was a public privilege that imposes a duty to use the invention in the case of *Hartford-Empire Co. v. United States*.⁶⁷ The Court stated: “A patent owner is not in the position of a quasi-trustee for the public or under any obligation to see that the public acquires the free right to use the invention. He has no obligation either to use it or to grant its use to others.”⁶⁸ The defendants allegedly conspired to restrain trade in the glass manufacturing market by, among other practices, pooling together 850 glass container manufacturing patents. They then suppressed these patents in order to block competing technologies and to sustain glass container prices at supracompetitive levels.⁶⁹ The leader of this cartel was the Hartford-Empire Company, which strictly enforced production quotas within the cartel and used patent infringement suits to aggressively deter commercialization of competing technologies.⁷⁰

65. *Special Equip. Co.*, 324 U.S. at 382–83 (5-4 decision) (Douglas, J., dissenting) (citations omitted).

66. *Id.* at 380–81 (Douglas, J., dissenting).

67. 323 U.S. 386 (1945).

68. *Id.* at 432.

69. *Id.* at 400.

70. See *Investigation of Concentration of Economic Power: Hearings Before the Temporary National Economic Committee*, 75th Cong. 771, 776 (1939) (Exhibit No. 125, from files of Hartford-Empire Company, *Memorandum on Policy of Hartford-Empire Company, February 18, 1930*) (“In taking out patents we have three main purposes—(a) To cover the actual machines which we are putting out, and prevent duplication of them. . . . (b) To block the development of machines which might be constructed by others for the same purpose as our machines, using alternative means . . . (c) To secure patents on possible improvements of competing machines, so as to ‘fence in’ those and prevent their reaching an improved stage”). For additional background on the *Hartford-Empire* case and the glass container manufacturing cartel,

Although the Supreme Court rejected the district court's decree enjoining the defendants from obtaining future patents "with the intention of not making commercial use of the invention within four years,"⁷¹ it affirmed the part of the decree that prohibited horizontal agreements among the defendants to suppress patents so as to fence in competitors:

In the cooperative effort of certain of the appellants to obtain dominance in the field of patented glass-making machinery, many patents were applied for to prevent others from obtaining patents on improvements which might, to some extent, limit the return in the way of royalty on original or fundamental inventions. The decree should restrain agreements and combinations with this object.⁷²

As a general rule, a patentee is not obligated, under either patent or antitrust laws, to use or allow others to use a patent. Instead, patented technologies may be shelved in the same way that the owner of a piece of real property or an item of private property may choose not to use it or to exclude all others from using it.⁷³

III. OCCURRENCES OF PATENT SUPPRESSION

There have been a number of cases where coupling patent nonuse with other conduct has led to claims of technology suppression. This Part analyzes several representative cases with the ultimate aim of identifying the strategies employed by companies who have suppressed the use of patent rights.

Predatory litigation, involving patent infringement suits or threat of suits, may lead a competitor to suppress an invention involuntarily when it cannot afford to defend the suit. Such suits may amount to

see DON E. WALDMAN & ELIZABETH J. JENSEN, *INDUSTRIAL ORGANIZATION: THEORY AND PRACTICE* 268–69, 583–84 (2d ed. 2001).

71. *Hartford-Empire*, 323 U.S. at 432.

72. *Id.* at 431–32; *accord* *Blount Mfg. Co. v. Yale & Towne Mfg. Co.*, 166 F. 555, 560 (D. Mass. 1909) ("Nonuse ordinarily violates no law; but contracting with another . . . not to use, is a contract in restraint of trade, designed for the purpose of suppressing competition.").

73. *See* *Transparent-Wrap Mach. Corp. v. Stokes & Smith Co.*, 329 U.S. 637, 643 (1947) (observing that patents are a form of property); *Brown v. Duchesne*, 60 U.S. 183, 197 (1856) (noting that rights of patentees are identical to those of private property owners). *But see* *Allied Research Prods., Inc. v. Heatbath Corp.*, 300 F. Supp. 656, 657 (N.D. Ill. 1969) ("Public policy requires liberal use of a patent. An owner of a patent cannot assert his rights under the law and Constitution if such owner refuses to make use of a patent, or to license a patent so that it may be of use to the public . . .").

sham litigation initiated without objective merit and in bad faith.⁷⁴ In the patent enforcement context, sham litigation may be part of a broader scheme to monopolize or suppress competition based on the attempted enforcement of patent rights that are nonexistent or no longer protectable.⁷⁵

Nevertheless, not all patent infringement litigation need be legally baseless to be considered predatory. In *Kobe, Inc. v. Dempsey Pump Co.*,⁷⁶ Kobe and its predecessors-in-interest had acquired and pooled⁷⁷ all of the critical patents on hydraulic oil well pump technology in order to discourage potential competitors from entering the market. No pumps were ever manufactured or marketed under a number of these patents.⁷⁸ Although Kobe did not use all of the patents it held, it

74. Under the *Noerr-Pennington* doctrine, a patent enforcement suit is immune from antitrust scrutiny unless the suit is a sham. The precise scope of this sham exception to antitrust liability was defined by the United States Supreme Court in *Professional Real Estate Investors, Inc. v. Columbia Pictures Industries, Inc.*, 508 U.S. 49 (1993), which set out a two-part test to determine whether a suit was in fact a sham:

First, the lawsuit must be objectively baseless in the sense that no reasonable litigant could realistically expect success on the merits. If an objective litigant could conclude that the suit is reasonably calculated to elicit a favorable outcome, the suit is immunized under *Noerr*, and an antitrust claim premised on the sham exception must fail. Only if challenged litigation is objectively meritless may a court examine the litigant's subjective motivation. Under this second part of our definition of sham, the court should focus on whether the baseless law suit conceals "an attempt to interfere *directly* with the business relationships of a competitor" . . . through the "use [of] the governmental *process*—as opposed to the *outcome* of that process—as an anticompetitive weapon.

Id. at 60–61 (citations omitted). This standard is nearly impossible to meet since it is often not difficult in hindsight to point to some apparently objective motive for bringing suit. For extended discussions of the Court's decision in *Professional Real Estate Investors*, see generally Stephen A. Stack, Jr., *Recent and Impending Developments in Copyright and Antitrust*, 61 ANTITRUST L.J. 331 (1993); James B. Perrine, Comment, *Defining the "Sham Litigation" Exception to the Noerr-Pennington Antitrust Immunity Doctrine: An Analysis of the Professional Real Estate Investors, Inc. v. Columbia Pictures Industries, Inc. Decision*, 46 ALA. L. REV. 815 (1995).

75. See WILLIAM C. HOLMES, INTELLECTUAL PROPERTY AND ANTITRUST LAW § 38.03 (Release No. 30, July 2001).

76. 198 F.2d 416 (10th Cir. 1952).

77. Patent pooling may result when marketplace rivals, who hold overlying or "blocking" patent rights so that neither can develop the underlying technology without infringing the other's patents, cooperate by cross-licensing one another or a third party entity created to administer the pool. The effect is to reduce transaction costs and risk of litigation that might hinder development of the technology. See Steven C. Carlson, Note, *Patent Pools and the Antitrust Dilemma*, 16 YALE J. ON REG. 359, 361–63 (1999).

78. See *Kobe*, 198 F.2d at 420.

sued or threatened to sue any firm that attempted to enter the market.⁷⁹ When Dempsey built and patented a new hydraulic pump in 1948, no pump other than Kobe's was available to the oil industry.⁸⁰ As Dempsey attempted to market its pump, which had generated considerable interest within the industry, Kobe sued for patent infringement, and Dempsey counterclaimed under the Sherman Act.⁸¹ The Tenth Circuit wrote:

We have no doubt that if there was nothing more than the bringing of the infringement action, resulting damages could not be recovered, but that is not the case [A]lthough Kobe believed some of its patents were infringed, the real purpose of the infringement action and the incidental activities of Kobe's representatives was to further the existing monopoly and to eliminate Dempsey as a competitor.⁸²

The court explained that the infringement action became an obstacle to the sale of Dempsey's pump by casting doubt on the validity of Dempsey's patent.⁸³ Accordingly, the Tenth Circuit affirmed the lower court's finding that Kobe had conspired to monopolize the market by attempting to suppress all competing hydraulic pumps.⁸⁴

Another strategy that leads to the suppression of internally-developed technology occurs when the patentee intentionally refuses to use or to license a patent. Such was the case with the development of a telephone answering machine based on magnetic recording. In 1930, AT&T and its subsidiary, Bell Laboratories, committed to fund research and development in magnetic recording based upon their earlier involvement in sound recording research and upon the Vitaphone invention, which produced sound for motion pictures.⁸⁵ As early as 1931, an engineer at Bell had proposed a telephone answering machine using a magnetic recorder, but it was Bell engineer Clarence Hickman's pioneering research that marked Bell's shift from phonograph-based technology to magnetic recording.⁸⁶ In 1934, he built a

79. This tactic is similar to that employed by the Hartford-Empire Company with respect to glass container manufacturing patents. *See supra* notes 67-72 and accompanying text.

80. *Kobe*, 198 F.2d at 420.

81. *See id.* at 418-22.

82. *Id.* at 425.

83. *See id.* at 425-26.

84. *See id.*

85. *See* Mark Clark, *Suppressing Innovation: Bell Laboratories and Magnetic Recording*, 34 *TECH. & CULTURE* 516, 520-24 (1993).

86. *See id.* at 524-25.

prototype of a telephone answering machine for AT&T. This prototype was tested successfully in-house and in limited field trials, and AT&T had been contacted by a number of businesses that were interested in purchasing a telephone answering device.⁸⁷

Despite AT&T's awareness since the 1920s that there was a market for telephone recorders, AT&T prohibited the connection of such devices to its lines until 1948 and waited until 1951 to introduce its own telephone answering machine.⁸⁸ AT&T's delay in commercializing these devices cannot be explained by poor quality or failure to secure patent protection; rather, upper level executives at AT&T decided to shelve commercial exploitation of magnetic recording "for ideological reasons stemming from the corporate culture of the Bell system Management feared that the availability of a recording device would make customers less willing to use the telephone system and so undermine the concept of universal service."⁸⁹

AT&T corporate memoranda document the concern that recorders would inhibit commercial negotiations by telephone, and similarly, would prevent individuals from using the telephone if they intended to discuss illegal and immoral issues.⁹⁰ Indeed, according to AT&T internal records, privacy was already a concern, since wiretapping was legal at this time. Consequently, management believed that the availability of reliable telephone answering machines would further fuel these fears.⁹¹ AT&T also desired to control the nature of the telephone system and prevent attachment of devices to its circuits that were outside system control.⁹² Thus, in order to preserve its control of the public telephone system, AT&T opted to withhold this product from the market deliberately.⁹³

AT&T's desire to dominate the field of telephone technology is further illustrated by its delay in the introduction of wireless telephony. In a 1909 internal memorandum, AT&T engineer John Carty argued for intensive research efforts into wireless communications

87. *See id.* at 529–30.

88. *See id.* at 522.

89. *Id.* at 533–34.

90. *See id.* at 534.

91. *See id.* at 534–35; *see also* JOINT ECONOMIC COMMITTEE, 88TH CONG., INVENTION AND THE PATENT SYSTEM 101 (Joint Comm. Print 1964) (suggesting that the magnetic recorder may have been suppressed "because the invention could compete with the dictaphone" as well).

92. *See* Clark, *supra* note 85, at 534–37.

93. *See id.* at 536–37. The technology finally came to light when the U.S. government funded Armour Research Foundation and Brush Development Company to develop and supply magnetic recorders to the military in World War II, which then stimulated post-war consumer demand and created markets for competitors. *See id.* at 537–38.

technology aimed at developing a wireless telephone.⁹⁴ Because of the success of the wireless telegraph, he feared that radio broadcasting would refine sound transmission technology and enter AT&T's market. In response, AT&T organized an intensive research effort designed to produce a system of quality wireless telephone service as a defensive measure to protect its existing investments.⁹⁵

At this time, firms such as General Electric, Westinghouse, and RCA were racing to patent the technologies necessary for long-distance wireless transmission.⁹⁶ The result was a host of overlapping patents by different firms on the necessary vacuum tube and circuit technologies.⁹⁷ Concurrent with these developments, Western Electric prepared what came to be known as the "Four Square Memorandum," which analyzed the role played by scientific developments in fields adjacent to telephony.⁹⁸ The memorandum discussed the conflict of interest between AT&T's wired telephone business on one side and RCA, General Electric, Western Union, and International Telephone & Telegraph's many radio patents on the other.⁹⁹

Subsequently, the contending parties began negotiations to foreclose the threat of incursion into AT&T's market. In 1926, AT&T entered into a license agreement with General Electric, RCA, and Westinghouse whereby AT&T would withdraw from the radio broadcast, the phonograph, and the motion picture markets and would provide its wired services to the three companies at reduced rates. In return, AT&T received exclusive licenses for all General Electric, RCA, and Westinghouse two-way wireless telephony patents.¹⁰⁰ Thus was

94. See N. R. DANIELIAN, A.T.&T. THE STORY OF INDUSTRIAL CONQUEST 104-05 (1939).

95. See *id.* at 105-07.

96. See LEONARD S. REICH, THE MAKING OF AMERICAN INDUSTRIAL RESEARCH 218-38 (1985) (recounting the race to patent wireless technologies).

97. See DANIELIAN, *supra* note 94, at 109-110.

98. See *id.* at 114-16.

99. See *id.* at 114-15.

100. See *id.* at 126-32. This outcome mirrored one in a dispute between Bell and Western Union in the early days of the telephone system. Bell's original patents were filed in 1876 and 1877 and were offered to Western Union for \$100,000. Western Union refused the offer, but later acquired other telephone patents. In *The Telephone Cases*, 126 U.S. 1 (1888), the Supreme Court determined that the basic patent rights to the telephone belonged to Bell. Western Union and Bell then negotiated an arrangement whereby Western Union acknowledged the validity of Bell's patents, licensed its own patents to Bell, and withdrew from the telephone industry with a promise not to re-enter. In return, Bell agreed to stay out of the telegraph industry and to reimburse Western Union for royalties on Bell's patents. Subsequently, Bell filed numerous infringement suits against competitors and developed or acquired even more patents. As a result, by the 1930s, Bell had established a virtual monopoly on long distance telephone service that was to last for decades. See Manley R. Irwin, *The Communications Industry*, in THE STRUCTURE OF AMERICAN INDUSTRY 380 (Walter Adams ed., 1971).

born a set of patent pools that was to keep the Antitrust Division of the Justice Department occupied for the next several decades.¹⁰¹

As a result of this deal, AT&T gained a monopoly on both domestic and international radiotelephony. “The inescapable result of . . . the pooling arrangement . . . was not to create competition for markets, but to monopolize the exploitation of improved equipment and to give a free hand to particular companies to press or delay, as interests dictated, the development of new industries under protection of monopoly.”¹⁰² AT&T proceeded to shelve many of the patents and, consequently, suppressed domestic wireless telephony for over four decades. The conduct by AT&T, RCA, Westinghouse, and General Electric demonstrates how patents can be used as offensive weapons to block rivals from developing competitive technologies.¹⁰³

Suppression involving patent pooling and accumulation can also be found in the history of the electric lamp industry. The electric lamp industry was born after Thomas Edison patented the first incandescent electric lamp in 1880. Competing in the industry required a large investment of fixed capital and specialized plants with high overhead costs.¹⁰⁴ These investments, coupled with an inelastic demand for electric lamps,¹⁰⁵ made competition difficult and cartelization more likely.¹⁰⁶ General Electric emerged as the leader in the U.S. lamp industry. “General Electric officials frequently ha[d] placed on record their fear of impending competition and their intention to use cross-licensing patent agreements to build a market structure so stable that the expiration of General Electric’s basic patents could not shake it.”¹⁰⁷

During the 1920s, in an effort to further its position in the lighting industry, General Electric entered into several cross-licensing agreements with competitors to divide domestic markets, to fix prices, and to regulate exports.¹⁰⁸ By the mid-1920s, an international cartel formed to divide markets and to cross-license patents and technical information. The cartel maintained a testing lab in Switzerland for the official purpose of standardizing quality. In practice, however, the standardization program had the unofficial purpose of increasing sales

101. See, e.g., DANIELIAN, *supra* note 94, at 128. The License Agreement was the subject of an antitrust suit against AT&T and the radio group that was settled pursuant to a consent decree that, *inter alia*, changed the exclusive license provisions to nonexclusive licenses. See *id.* at 132.

102. *Id.*

103. See REICH, *supra* note 96, at 235–38.

104. See GEORGE W. STOCKING & MYRON W. WATKINS, CARTELS IN ACTION: CASE STUDIES IN INTERNATIONAL BUSINESS DIPLOMACY 307–12 (1946).

105. Demand was inelastic because a decrease in price was not accompanied by an increase in demand. See *id.* at 325.

106. See *id.* at 307–12.

107. *Id.* at 327.

108. See *id.* at 308.

by eliminating quality competition in the sale of lamps and by limiting or reducing the life of light bulbs.¹⁰⁹ As a result, incandescent light bulbs with long lifespans were suppressed. During the Depression, however, this cartel began to break down as General Electric's patents expired and as more competitors entered the market, offering longer-life bulbs.¹¹⁰

A similar pattern of collusive activity occurred with the development of fluorescent light bulbs. By the 1920s, the basic technology for fluorescent lighting was patented and widely-known. Yet, General Electric and Westinghouse, the leading U.S. manufacturers, were determined to saturate the incandescent light market before releasing the new technology.¹¹¹ This delay was made possible in part by a licensing agreement between the two manufacturers that explicitly forbade Westinghouse from underpricing General Electric in exchange for allowing Westinghouse to use General Electric's tungsten filament patents. In addition, the licensing agreement controlled Westinghouse's output so that it was always limited to a specific percentage of the combined net sales of patented incandescent light bulbs made by both firms.¹¹²

The suppression of fluorescent lighting was partially in response to pressure from electric utility companies, which believed that the increased efficiency of fluorescent lighting would lead to reduced demand for electricity and lowered profits. The lighting and electric industries were highly dependent on each other. Since the fluorescent lamp was "acclaimed as several times more efficient than incandescent lighting,"¹¹³ there was a possibility that the lighting load would

109. *See id.* at 351–55.

110. *See id.* at 355–56.

111. *See* ARTHUR A. BRIGHT, JR., *THE ELECTRIC-LAMP INDUSTRY: TECHNOLOGICAL CHANGE AND ECONOMIC DEVELOPMENT FROM 1800 TO 1947* at 400–01 (1949).

112. *See id.* This agreement was subject to an antitrust challenge in *United States v. General Electric Co.*, 272 U.S. 476 (1926), in which the Supreme Court upheld price-restricted licensing. This case presents a classic dilemma in patent antitrust law. The Court had to decide whether or not to allow the price-fixing clause General Electric imposed on Westinghouse. By permitting price-fixing and encouraging more licensing, it could effect a short-term reduction in GE's monopoly power. However, the Court would reduce the incentives for long-term technological innovation, because GE and the licensees would all lose if aggressive competition erupted after the development of a new light bulb. On the other hand, if the Court invalidated the price-fixing clause, General Electric would adopt a non-licensing policy and produce all tungsten filament bulbs itself. Striking down the price-fixing clause would give GE a short-term monopoly but would provide Westinghouse and others a stronger incentive to invent around the tungsten filament patents. The Court decided to adopt the former policy of allowing the price-fixing clause. The decision in *General Electric* has never been overturned, though its rule has been narrowly applied. *See* WALDMAN & JENSEN, *supra* note 70, at 582–83.

113. *See* BRIGHT, *supra* note 111, at 401.

be seriously affected. This view was held by many electric utility experts, even though previous experience had indicated that, whenever there were efficiency improvements in incandescent lighting, within a relatively short time, the lighting load grew instead of declined.¹¹⁴ It was convenient for General Electric and Westinghouse to delay the introduction of fluorescent lighting as long as the market for incandescent lights remained stable.¹¹⁵ Finally, in 1938, General Electric and Westinghouse introduced fluorescent lights when Sylvania, a new competitor, successfully released fluorescent lights, threatening to become the industry leader in manufacturing and selling these new bulbs.¹¹⁶

Like the electric light industry, the chemical industry also has a history of patent pooling and collaboration in settling disputes and dividing areas of market influence. Prior to World War II, this tendency toward collaboration led to anticompetitive behavior by two leading chemical companies. In 1929, both Standard Oil and the German conglomerate, I.G. Farben, mutually agreed not to compete by recognizing the primacy of the other in petroleum and in chemicals, respectively.¹¹⁷ Standard Oil gained ownership and control of Farben's existing and future hydrogenation process patents outside of Germany. Standard Oil also became a junior partner with Farben in the manufacture of new chemical products derived from petroleum and natural gas.¹¹⁸ Once Standard Oil acquired these patent rights, it showed little interest in using the hydrogenation processes in production. Instead, it was more interested in blocking the threat that liquid fuels and coal lubricants posed to the oil industry.¹¹⁹ Standard Oil apparently leveraged these rights to bring other petroleum refining companies into a patent pool that extended its original rights and discouraged the synthetic production of liquid fuels and coal lubricants.¹²⁰

In 1931, Farben discovered a new synthetic oil product, Paraflow, which was a pour-point depressant that lowered the temperature at which oil flows.¹²¹ Standard Oil obtained exclusive rights to Paraflow from Farben in 1932. In addition, Standard Oil added complementary patents of its own to their pool and used these to eliminate any competition to Paraflow. One competing product, Santopour, was more effective and economical and threatened to displace Paraflow.¹²² Standard Oil reached an agreement to acquire the patent rights to San-

114. *See id.* at 401–02.

115. *See id.* at 401.

116. *See id.* at 404.

117. *See* STOCKING & WATKINS, *supra* note 104, at 491.

118. *See id.* at 491.

119. *See id.* at 492.

120. *See id.* at 492–97.

121. *See id.* at 497.

122. *Id.*

topour and, afterwards, in an internal memorandum, Standard Oil's management considered either increasing the price or diluting the product as a means of removing it from the market:

We would have to tell a rather embarrassing story to explain the marked change in either price or potency of Santopour, and the real reason for the change would be obvious to the trade. Our conclusion is, therefore, that the best policy is to retire Santopour quickly and quietly as possible, and to market only Paraflow of present potency.¹²³

Standard then proceeded to withdraw Santopour from the market and suppressed its patent rights on the product.¹²⁴ In addition, there is evidence that Standard Oil collaborated with I.G. Farben to pool and suppress their patents on synthetic rubber, thereby impeding the production of synthetic rubber by competitors before World War II.¹²⁵ Since Standard Oil and Farben had agreed not to compete in each other's domestic spheres, Standard Oil pursued a strategy whereby it first obtained exclusive U.S. licenses on Farben's key patents for producing nitrile polymers and then approached competing firms such as Goodyear and Goodrich with a deliberately stringent and costly licensing proposal. Standard Oil anticipated that its competitors would reject the proposal but be interested enough to continue negotiations which Standard Oil could prolong until it refined its own product and brought it to market.¹²⁶

123. *Id.* at 498.

124. There is evidence that, like the chemical and electric lamp industries, the railroad industry in the nineteenth century was also highly collusive. The likelihood of new entrants to the market was slim, and competition came from alternative forms of transportation, not from other railroads. Railroads require substantial investment in a fixed technical plant, and the innovation that occurred was concerned with economy and scale, rather than rivalry and competition. This led to the desire for industry standardization and uniformity, which in turn may have slowed innovation. Cooperative associations shared information about patents affecting the railroad industry, and the introduction of alternative technologies was tightly controlled through patent pools. On the other hand, standardization in the railroad industry also led to more efficient services and promoted inter-branch competition by reducing the need for offloading and trans-shipping. For further discussion of early railroad patenting practices, see Steven W. Usselman, *Patents Purloined: Railroads, Inventors, and the Diffusion of Innovation in 19th Century America*, 32 *TECH. & CULTURE* 1047 (1991); ALFRED D. CHANDLER, JR., *THE VISIBLE HAND: THE MANAGERIAL REVOLUTION IN AMERICAN BUSINESS* 78–80 (1977).

125. See Davis R. B. Ross, *Patents and Bureaucrats: U.S. Synthetic Rubber Development Before Pearl Harbor*, in *BUSINESS AND GOVERNMENT* 119–47 (Sleepy Hollow Press 1986).

126. See *id.* at 132–35. The intervention of the U.S. government to promote synthetic rubber development with the approach of World War II probably mitigated the nation's vulnerability had the supply of rubber been cut off by war. *Id.* at 135–36.

The acquisition of a competitor or its patent rights may also present an opportunity for technology suppression. “If one company acquires another while the latter is in control of the development of a new technology, the former is placed in a position to suppress the development of that technology.”¹²⁷ This may occur when a leading firm in a current product market acquires a potential competitor that has developed a next-generation product that might displace a current product. This occurred in two antitrust cases involving the pharmaceutical company Johnson & Johnson.

*McDonald v. Johnson & Johnson*¹²⁸ involved StimTech, a small corporation that had been formed to develop and market a patented transcutaneous electronic nerve stimulation (“TENS”) device to control pain through electrodes attached to the site of the pain.¹²⁹ StimTech’s marketing strategy depended on the acquisition of additional financing. Johnson & Johnson learned of StimTech’s need for additional capital and approached its owners with an offer to acquire StimTech in exchange for a promise to market the TENS device. Hagfors, Jensen, and McDonald, the original owners, were to become employees.¹³⁰

After Hagfors, Jensen, and McDonald agreed to this arrangement, Johnson & Johnson imposed on StimTech a number of highly restrictive measures, such as a hiring freeze, a cap on research and development (“R&D”) funding, an inventory reduction, and a prohibition on expansion of sales. Johnson & Johnson also prohibited any expansion in sales of the TENS device and eliminated further R&D directed toward refinement of the device. As a result, StimTech incurred operating losses of \$7.3 million and lost market share to other TENS companies. In addition, its original owners were forced out.¹³¹

McDonald, Hagfors, and Jensen sued, alleging that Johnson & Johnson had violated the antitrust laws by acquiring StimTech to suppress the TENS device and thereby eliminate competition with Johnson & Johnson’s highly successful pain control drugs, such as Tylenol and Zomax.¹³² The district court found that there was substantial evidence of Johnson & Johnson’s intent to suppress the TENS device, as well as competition in the pain control market, to preserve the dominance of its well-established pain medication products and to prevent competition from the equally effective TENS device.¹³³ The Eighth Circuit agreed that Johnson & Johnson had suppressed the TENS de-

127. Dunford, *supra* note 13, at 520.

128. 722 F.2d 1370 (8th Cir. 1983).

129. *See id.* at 1372 n.1.

130. *Id.* at 1372.

131. *See McDonald*, 722 F.2d at 1372–73.

132. *See McDonald v. Johnson & Johnson*, 537 F. Supp. 1282, 1305, 1307 (D. Minn. 1982).

133. *See id.* at 1331–46.

vice and had acquired StimTech for this purpose, but reversed on the ground that the owners had voluntarily sold StimTech and assigned the TENS device patent. As such, the court ruled that they were no longer competitors with Johnson & Johnson and lacked standing to sue under the federal antitrust laws.¹³⁴

Johnson & Johnson employed a similar strategy in its attempt to suppress the Meditemp electronic thermometer. The facts and pattern of conduct leading to the *Turner v. Johnson & Johnson*¹³⁵ case are strikingly similar to those in *McDonald*. Turner invented and patented an electronic thermometer and then founded American Medical Electronics Corporation ("AMEC"), which manufactured and marketed the device as the Meditemp thermometer.¹³⁶ In 1975, AMEC and Johnson & Johnson began negotiating for the purchase of AMEC's assets. Allegedly, Johnson & Johnson promised to promote the development and sale of Meditemp.¹³⁷ During the negotiations, Arbrook, Inc., a wholly-owned subsidiary of Johnson & Johnson that claimed to have an option to acquire another electronic thermometer, brought a patent interference suit to determine the validity of AMEC's patents.¹³⁸

In 1976, AMEC and Johnson & Johnson concluded a sale of assets agreement by which Johnson & Johnson allegedly promised to promote fully the development and marketing of Meditemp.¹³⁹ After the acquisition of AMEC's assets and patent rights, however, Johnson & Johnson systematically refused to provide sufficient funding or support to develop and successfully market Meditemp. In 1979, Johnson & Johnson discontinued Meditemp.¹⁴⁰ Turner filed suit, alleging fraud and antitrust violations by Johnson & Johnson to gain control of AMEC in order to suppress the device and eliminate AMEC as a competitor in the temperature-taking market.¹⁴¹ As in the *McDonald* case, the court granted summary judgment in favor of Johnson &

134. See *McDonald*, 722 F.2d at 1376-79. For a detailed discussion of the standing issue in the *McDonald* decision, see Kurt M. Saunders, Comment, *Diluting Our Antitrust Laws: Federal Standing Analysis Under Section 4 of the Clayton Act*, 46 U. PITT. L. REV. 241 (1984).

135. 549 F. Supp. 807 (D. Mass. 1982).

136. See *id.* at 809.

137. See *id.* at 811.

138. Coincidentally, Johnson & Johnson executives had taken McDonald, Hagfors, and Jensen on a tour of Arbrook to demonstrate the nature and level of support that StimTech could expect as a subsidiary. See *McDonald*, 537 F. Supp. at 1293.

139. *Turner*, 549 F. Supp. at 809, 811.

140. See *id.* at 810.

141. See *id.* at 809. Turner further alleged that Johnson & Johnson had disclosed confidential information to Arbrook during the negotiations with AMEC and provoked the patent interference suit to pressure AMEC in their discussions. See *id.* at 810 ("Plaintiffs allege[d] that contrary to the written agreement between the parties, [Johnson & Johnson] never returned the Meditemp business to AMEC and eventually buried the business in the Randolph town dump.")

Johnson and dismissed the antitrust claim for lack of standing: "The sale of AMEC's assets to [Johnson & Johnson] effectively removed AMEC from the [electronic temperature taking] marketplace."¹⁴² Nevertheless, the court decided that Johnson & Johnson's representations concerning its intention to develop and market Meditemp involved genuine issues of fact and allowed AMEC's fraud claim to go to trial.¹⁴³

Lack of antitrust standing was also a problem for the plaintiff in *Alling v. Universal Manufacturing Corp.*¹⁴⁴ Alling, through his Luminoptics Corp., had licensed a lamp ballast from its inventor. Lamp ballasts are used in fluorescent lighting to control the flow of electricity through the lamp. Universal was a leading manufacturer of ballasts.¹⁴⁵ Alling's electronic ballast was capable of dimming the fluorescent light when exposed to increased levels of natural light throughout the day, resulting in a potential savings of up to seventy percent of the power used by a conventional magnetic ballast.¹⁴⁶ Though testing of the electronic ballast had met with only limited success, Universal sought and acquired an exclusive license on Alling's patents in exchange for a promise to use its best efforts in producing and marketing the device.¹⁴⁷

Within a few years after entering into the license agreement, Alling's disenchantment with Universal's efforts led him to attempt, unsuccessfully, to invoke the buy-back provision of the agreement.¹⁴⁸ Alling then brought an antitrust action, along with state tort and breach of contract claims, against Universal.¹⁴⁹ Specifically, Alling maintained that Universal was suppressing his invention so as to prevent its competition with Universal's ongoing investment in existing magnetic ballasts.¹⁵⁰ The antitrust claim was dismissed on the grounds that Alling lacked standing to sue,¹⁵¹ but a jury trial on the state law claims resulted in a verdict for Alling on the grounds that Universal had fraudulently secured the exclusive license with the intention of withholding the device from the market rather than manufacturing and distributing it.¹⁵²

142. *Id.* at 811.

143. *See id.* at 812.

144. 7 Cal. Rptr. 2d 718 (Cal. Ct. App. 1992).

145. *See id.* at 721 n.1.

146. *See* Teresa Riordan, *Two inventors hope they will finally win compensation for a device that was squelched*, N.Y. TIMES, July 21, 1997, at D2.

147. *See Alling*, 7 Cal. Rptr. 2d at 725.

148. *See id.* at 728.

149. *See id.* at 729.

150. *See id.*

151. *Id.*

152. *See id.* at 731.

Exclusive licensing of a patent followed by nonuse has been another strategy employed to effectuate suppression. According to a leading treatise, “[a] license is exclusive if the licensee receives exclusivity over a geographic area, a field of use, or a time period.”¹⁵³ By granting an exclusive license, a patentee transfers its exclusive right to a single licensee and precludes the patentee’s right to license to others. The patentee is rewarded by receiving rents from the licensee and by avoiding the expense of seeking out and negotiating with others. In return, the exclusive licensee receives sole control of the invention without incurring the expense of basic research.¹⁵⁴ If a patentee is unable or unwilling to use a patent, the patentee may grant an exclusive license to another firm that expresses a desire to develop and market the invention. In some instances, the exclusive licensee may then attempt to lock away the invention by refusing to use the patent or develop and commercialize the invention.

The plaintiff made a similar claim in the case of *Nestler v. Exxon Corp.*¹⁵⁵ In the mid-1960s, Nestler, a grocery store employee, invented a nested plastic bagging device that used polyethylene bags inserted one within the other to cut the time and cost of bagging purchased items at grocery store checkout counters.¹⁵⁶ Nestler obtained a patent on the invention and acquired enough private financing to set up a factory to produce the nested plastic bagging device. He had also obtained a machine from Sheldahl Company to produce plastic bags for sale and use with his device.¹⁵⁷ The plastic bags were made using petroleum resins.¹⁵⁸

In need of a supplier of resins, Nestler entered into an exclusive patent licensing agreement with Exxon, then the largest U.S. petroleum producer.¹⁵⁹ Exxon claimed to be interested in new markets for resins and promised to finance the cost of developing and increasing a market for the bagging device. After learning that Sheldahl was the only source of the plastic bag-making machine, Exxon secretly entered into an agreement with Sheldahl, thereby gaining control of the process for producing nested plastic bags and the Nestler device.¹⁶⁰

Thereafter, Exxon allegedly refused to allow Sheldahl to supply Nestler with the plastic bag-making machines.¹⁶¹ Nestler brought

153. DONALD S. CHISUM & MICHAEL A. JACOBS, UNDERSTANDING INTELLECTUAL PROPERTY LAW § 2G[2] (1992).

154. Unlike a nonexclusive licensee, an exclusive licensee may sue for infringement of the patent. *See id.*

155. 1976-1 Trade Cas. (CCH) ¶60,876 (D.D.C. 1976).

156. *See id.* at 68,832.

157. *See id.* at 68,834.

158. *See id.* at 68,832.

159. *See id.*

160. *See id.* at 68,834.

161. *See id.*

breach of contract and antitrust claims. Nestler claimed that Exxon failed and refused to manufacture the device, deliver the device and bags to customers, and expand production capacity as agreed.¹⁶² Further, Nestler asserted that Exxon failed to provide customer information and capacity forecasts so that he could make his nested plastic bagging device available to customers. By these actions, he maintained that Exxon deprived the public of the benefits of competition and the use of the system, arguing that “Exxon undertook a calculated and planned program to squeeze Nestler out of business and destroy Nestler-May as a going concern, leaving Exxon with monopoly control of the U.S. license, and Nestler shut off from obtaining a nested bag machine to use in competition with Exxon”¹⁶³

In granting summary judgment for Exxon, the federal district court found that there was no breach of the exclusive licensing agreement because the payment of royalties depended upon production of the device.¹⁶⁴ Citing to the *Continental Paper Bag* and *Special Equipment* cases, the court stated that a patentee’s failure to make use of a patented invention does not invalidate the patent.¹⁶⁵ The court also found that there was not enough evidence to conclude that Exxon’s purpose in securing the exclusive license was to perpetuate an unreasonable restraint of trade.¹⁶⁶

An exclusive licensing arrangement led to a claim of nonuse in *Bloch v. SmithKline Beckman Corp.*¹⁶⁷ Bloch was a medical researcher who licensed his product idea to his then employer, SmithKline U.K. In 1974, they entered into a licensing agreement for the development, marketing, and patenting of the MgK dietary supplement.¹⁶⁸ The supplement contained magnesium and potassium compounds for use in diuretic therapy. In confidence, Bloch disclosed his idea “that the amount of potassium in the body changes in proportion to the amount of magnesium in the body.”¹⁶⁹ This idea was important because “[m]ost diuretic drugs then on the market were known to be potassium depleting, which caused various adverse side effects, including fatigue, dizzy spells and confusion.”¹⁷⁰

SmithKline agreed that it would surrender its exclusive rights to Bloch if it did not further develop MgK in the UK. or did not apply for a product license. Additionally, if SmithKline obtained a product

162. *See id.* at 68,833.

163. *Id.* at 68,834–35.

164. *See id.* at 68,834. The court also held that the licensing agreement allowed Nestler to produce the device if Exxon did not do so. *Id.* at 68,836.

165. *See id.* at 68,835.

166. *See id.*

167. No. CIV. A. 82-510, 1988 WL 117927 (E.D. Pa. Nov. 1, 1988).

168. *See id.* at *1.

169. *Id.*

170. *Id.*

license but did not market within twelve months of the grant of the license, it would also surrender exclusive rights to Bloch.¹⁷¹ When SmithKline failed to make any use of these rights to test, produce, or market the drug, Bloch brought a suit alleging patent fraud and anti-trust claims against SmithKline. Bloch contended that MgK was suppressed because of potential competition with Dyazide, SmithKline's popular diuretic drug, in that: (1) SmithKline intentionally frustrated clinical studies that would have confirmed Bloch's test results; (2) SmithKline falsely led Bloch to believe that testing and development of MgK as a marketable product was continuing; (3) SmithKline suppressed its own test results that demonstrating longtime use of Dyazide depleted magnesium; and (4) SmithKline committed patent fraud by continuing to misrepresent and not disclose test results concerning Dyazide.¹⁷²

SmithKline moved for summary judgment. After reviewing the evidence, the court found that there was a genuine issue as to whether the alleged suppression occurred¹⁷³ and that SmithKline "purposely obstruct[ed] the development of a potentially competitive product."¹⁷⁴ In addition, the court was not doubtful that Bloch had standing to sue for the antitrust violation¹⁷⁵ and resolved that SmithKline "did not simply stop helping [Bloch] but allegedly also deceived [him] in order to hold onto the product rights and thereby obstruct the development of MgK by others."¹⁷⁶ However, while Bloch's allegations of suppression received more favorable treatment than those of the plaintiffs in *Alling* and *Nestler*, the court nonetheless failed to redress the alleged suppressive activities of the defendant when it granted summary judgment to SmithKline on the *Walker Process*¹⁷⁷ patent fraud claim.¹⁷⁸

As the cases discussed in this Part demonstrate, there are a variety of methods to accomplish the suppression of a patented invention. These examples also reveal how difficult it has been for plaintiffs to prevail on such claims. The next Part will analyze the rationale behind a deliberate decision not to use and license a patent for the purpose of suppressing an invention.

171. *See id.*

172. *See id.* at *3.

173. *See id.* at *22.

174. *Id.* at *6.

175. *See id.* at *23.

176. *Id.*

177. In *Walker Process Equipment, Inc. v. Food Machinery & Chemical Corp.*, 382 U.S. 172 (1965), the Supreme Court held that in order "to strip [a patentee] of its exemption from the antitrust laws" in an infringement action, it must be proved that the patentee had "obtained the patent by knowingly and willfully misrepresenting facts" in filing its patent application and was aware of this fraud when bringing suit. *Id.* at 177.

178. *Bloch*, No. CIV. A. 82-510, 1988 WL 117927 at *7-10, *24.

IV. THE RATIONALE FOR PATENT NONUSE LEADING TO SUPPRESSION

As the previous discussion demonstrates, allegations of patent suppression have most often arisen in two contexts: patent infringement claims and antitrust claims in which a patented invention is involved.¹⁷⁹ In and of themselves, the patent activities described in the previous Part do not necessarily lead to suppression or anticompetitive results.¹⁸⁰ A unilateral refusal to license a patent or sell patented inventions can be supported by a variety of legitimate business reasons.¹⁸¹ Patent pooling and cross-licensing may have distinctly pro-competitive effects in certain cases,¹⁸² while aggressive enforcement of validly-procured patent rights in the face of infringement is entirely acceptable. Nevertheless, these actions may also facilitate technology suppression when their ultimate aim is to lock up a patent that its owner does not intend to exploit. This Part will identify and examine the factors that may lead a firm to refuse to license or use a patent. The principal reasons underlying a decision to suppress are economic, though there are several secondary factors that may come into play.

The decision to patent, adopt, and commercialize an innovation involves a myriad of considerations concerning the firm, the market, and the technology.¹⁸³ A patented invention faces various competitive forces during its life cycle. Initially, the invention faces competition

179. See Rasch, *supra* note 13, at 7.

180 On occasion, the government itself suppresses a technology on the grounds that “the publication or disclosure of the invention by the publication of the application or by the granting of a patent therefore would be detrimental to the national security.” 35 U.S.C. § 181 (2001). The Defense and Justice Departments have established a series of subject categories that comprise sensitive military functions, which are contained in the Patent Security Category Review List. Approximately three percent of all patent applications fall into these categories and are reviewed by the military and the Justice Department. See Sabin H. Lee, *Protecting the Private Inventor Under the Peacetime Provisions of the Invention Secrecy Act*, 12 BERKELEY TECH. L.J. 345, 362 n.102 (1997); see also Gary L. Hausken, *The Value of a Secret: Compensation for Imposition of Secrecy Orders Under the Invention Secrecy Act*, 119 MIL. L. REV. 201 (1988).

181. See U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 2.2 (1995) (hereinafter LICENSING GUIDELINES), reprinted in 4 TRADE REG. REP. (CCH) ¶13,132 (1995); see also Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451 (1992); *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322 (Fed. Cir. 2000); *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346 (Fed. Cir. 1999). For a discussion of the antitrust implications of refusals to license, see Joseph A. Franco, Note, *Limiting the Anticompetitive Perogative of Patent Owners: Predatory Standards in Patent Licensing*, 92 YALE L.J. 831 (1983).

182. See LICENSING GUIDELINES, *supra* note 181, at § 2.2 .

183. See generally EVERETT M. ROGERS, *DIFFUSION OF INNOVATIONS* (4th ed. 1995).

from existing inferior technologies that it might replace but that may still be cheaper to produce. In addition, conditions or developments in related industries may favor older technologies. Later in its life cycle, a patented invention is likely to face competition from newer technologies and from itself after the term of the patent expires.¹⁸⁴

As the earlier discussion demonstrates, whether an innovation is radical or routine would seem to have little consequence. Different types of innovations may be suppressed for different reasons. For example, radical innovations that reconceptualize a product or dramatically increase productivity might arise from outside or within an industry. In either event, it is easy to imagine that such innovations would be resisted and seen as a threat to the status quo. Incremental innovations, on the other hand, are more likely to originate from within an industry, but they may represent avoidable expense, especially when an existing revenue stream is constant.¹⁸⁵

Thus, distinctions between radical and routine innovations shed little light on why a firm may choose to suppress a technology. What is certain, however, is that the decision to suppress reveals that the patentee places a higher value on not using and not allowing others to use the technology; in other words, the value of the patent derives from its nonuse.¹⁸⁶ For an alleged infringer of a nonused patent, the opposite is true; the value of the patent is in its use.¹⁸⁷ This suggests that the best evidence of patent suppression is nonuse, coupled with refusals to license,¹⁸⁸ followed by an aggressive policy of bringing infringement suits against any competitor that attempts to patent or market a competitive technology. Such conduct suggests that the patentee has made a deliberate decision to forego use of the patent as well as the opportunity to generate licensing revenue from the unused asset.

When a technology is suppressed, consumers incur a two-fold welfare loss. First, consumers' enjoyment of the invention is denied or delayed; second, the incremental innovations and improvements to the original invention are also delayed or denied to consumers.¹⁸⁹ Al-

184. For an extended treatment of these points, see Edmund Kitch, *Patents: Monopolies or Property Rights?*, 8 RES. L. & ECON. 31 (1986).

185. For an examination of the differences between radical and routine or incremental innovations, see THE PROCESSES OF TECHNOLOGICAL INNOVATION, *supra* note 47, at 18-20.

186. Cf. Turner, *supra* note 12, at 201.

187. *See id.*

188. The refusal to license may be an outright rejection of licensing opportunities or a decision to set so high a price, or so restrictive a limitation on field of use, as to make licensing unattractive and unreasonable to other firms.

189. One commentator has argued, however, that patent suppression serves a metering function because it signals that an invention has no value or that its value is inferior to the costs that producing it would generate. *See de Carvalho, supra* note 46, at 67 n.168.

though it seems logical to conclude that the “rational” patentee will use or license a patent that is commercially viable,¹⁹⁰ there are several institutional reasons that may lead a patentee instead to suppress the technology. Corporate firms are, by nature, conservative institutions that strive for survival, stability, and continuity. The adoption of a technological innovation may be resisted because it poses a threat to the status quo.¹⁹¹ A shift away from an established technology may also disrupt the hierarchy of power and prestige upon which the firm’s control structure is based.¹⁹² Likewise, a “[c]hange in technology may mean obsolescence in labor as well as in machines, and therefore workers have opposed inventions that threaten their jobs.”¹⁹³ A firm may be reluctant to introduce a new technology that will de-skill or displace workers, especially if the firm is faced with a strong union and fears strikes or political retaliation.¹⁹⁴

Aside from these concerns, there are other considerations that may lead a firm to forgo use of a patent. Nonuse may occur where two

190. See PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS* 426–27 (5th ed. 1997); see also RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 316 (5th ed. 1998) (“it is always more profitable to license production to a more efficient producer”); ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 138 (1998) (“licensing of a patent for a fee is much more valuable to the patentee than is the act of not revealing an invention”).

191. For an extended discussion of the corporate resistance to disruptive technological innovation and a proposal of how firms should manage the technologies, see CLAYTON M. CHRISTENSON, *THE INNOVATOR’S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL* (1997).

192. See DONALD A. SCHON, *TECHNOLOGY AND CHANGE: THE NEW HERACLI-TUS* 63–67 (1967). Schon uses the following example to illustrate this point:

The research department of an appliance company developed a new means of preserving foods. It would have replaced conventional refrigerators. The sales department laughed the idea out of court. They *already* had 30 per cent of the refrigerator market: how could this new principle do anything but hurt their position? Their distributors were sold on the current line, understood the product, knew how to sell it. Why upset them? Millions had been invested in establishing the firm name in refrigerators: why undercut that investment?

Id. at 66; see also David F. Noble, *The Corporation as Inventor: Patent-Law Reform and Patent Monopoly*, in *AMERICA BY DESIGN: SCIENCE, TECHNOLOGY, AND THE RISE OF AMERICAN CAPITALISM* 84 (1977) (chronicling the rise of corporate control of the patent system that facilitated the exploitation and retardation of innovation).

193. See VAUGHAN, *supra* note 13, at 229–30. This dilemma is not new. In Europe, from 1400 to 1700, the guilds resisted the use of machines, such as pinhead pressing machines, looms, and button-weaving machines, in order to fence out innovation and protect their constituents. See Bernhard J. Stern, *The Frustration of Technology*, 2 *SCI. & SOC’Y* 3, 14 (1937) (“Workers can hardly be expected to be receptive to technological changes in the specific fields in which they are employed, when they are cognizant that their skills will be rendered worthless and their status and very livelihood imperiled by the resultant unemployment.”); see also SCHON, *supra* note 192, at 67.

194. See Stern, *supra* note 193, at 14.

firms hold blocking patents, neither of which can be used without licensing the other.¹⁹⁵ In addition, small firms or single inventors may have inadequate finances or infrastructure to develop and commercialize¹⁹⁶ or may be ignorant of the potential value of licensing opportunities.¹⁹⁷ An established firm may not use a patent because it believes that the invention is useless or unmarketable.¹⁹⁸ An invention will be unmarketable without current demand¹⁹⁹ or with prohibitive production costs.²⁰⁰ Likewise, if the choice is between two alternative technologies, the firm may decide to use the one that is cheaper to produce

195. See Turner, *supra* note 12, at 183 n.15 (postulating that this will “most often occur between a pioneer patent and an improvement patent”).

196. See VAUGHAN, *supra* note 13, at 227.

197. See Rossman & Sanders, *supra* note 10, at 135 (reporting that a frequent reason for nonuse is belief that there is a lack of market demand); see also Gharrity, *supra* note 10, at 32–33 (explaining that the top three reasons for nonuse are belief that the new invention will create a competitive disadvantage, that there is a lack of market demand, and that the technology is obsolescent). For an intriguing solution to this problem, see Carl A. Kukkonen, *The Use of Patent Licensing Center as an Intermediary for Facilitating the Licensing of Commercially Viable, Unused Patents*, 3 VA. J.L. & TECH. 10–11 (1998) (discussing the use of a patent rights collective as a vehicle for promoting the licensing of unused patents).

198. Researchers have speculated that eighty to ninety-five percent of patents may fall in this category. See STAFF OF SENATE COMM. ON THE JUDICIARY, 85TH CONG., 2D SESS., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 12 (Comm. Print 1958); ERNEST GELLHORN, ANTITRUST LAW AND ECONOMICS IN A NUTSHELL 387 (3d ed. 1986) (up to ninety percent of patents are not used “because they have no commercial value”); JOHN JEWKES ET AL., THE SOURCES OF INVENTION 106 (1958) (“95 per cent of all patents have no commercial value at all”). *But see* S. CHESTERFIELD OPPENHEIM ET AL., FEDERAL ANTITRUST LAWS 873–74 (4th ed. 1981) (reviewing various patent utilization studies that indicate that most patents are in commercial use and suppression is rare).

199. Cf. William J. Abernathy & Kim B. Clark, *Innovation: Mapping the Winds of Creative Destruction* 14 RES. POL’Y 3, 4 (1985) (“What may be a startling breakthrough to the engineer, may be completely unremarkable as far as the user of the product is concerned.”). In a similar vein, Judge Easterbrook recounts IBM’s lack of interest in acquiring the rights to Chester Carlson’s corona-charging patent, which enabled plain-paper photocopying:

Before Xerox Corporation made a fortune selling Carlson’s photocopiers, his original licensee, the Battelle Institute, tried to raise development funds by selling a fifty percent interest in the invention to leading makers of office equipment. One potential buyer was International Business Machines Corporation. IBM commissioned a study by the best consulting firm money could buy; the consultants determined that there was no market for plain-paper photocopying, and after receiving this assessment IBM declined to invest. This was a spectacular blunder, but only in retrospect.

Frank H. Easterbrook, *Cyberspace Versus Property Law?*, 4 TEX. REV. L. & POL. 103, 107 (1999). For a collection of strange and (apparently) useless patents, including a water spray burglar alarm and an eye protector for chickens, see Michael J. Colitz, Jr., *Wacky Patent of the Month*, at <http://colitz.com/site/wacky.htm> (last visited Apr. 5, 2002).

200. See Turner, *supra* note 12, at 182.

or that is likely to generate more sales.²⁰¹ Additionally, a firm may not commercially use a patent when it is in an industry where the norm is to patent *en masse* any and all innovations,²⁰² or where the invention has no commercial applications in the patentee's market.²⁰³ This, of course, leaves unanswered the question of why the firm would not produce the less expensive product and license the patent for the more expensive product.

There are, however, more revealing reasons that a firm may choose to suppress a patent. When a firm commits itself to the manufacture of a particular product, it must make an upfront investment in the necessary production process and infrastructure. This investment represents a fixed or sunk cost.²⁰⁴ As pointed out by Areeda and Kaplow, "a [p]atentee may not find it profitable to scrap existing machinery in order to adopt a new production process or eliminate a product line that would be superseded by the new product."²⁰⁵ If the new technology requires replacing the existing production infrastructure with expensive new tooling, there will be new and substantial switching costs involved in adopting such technology.²⁰⁶ In this situation, the

201. John S. McGee, *Patent Exploitation: Some Economic and Legal Problems*, 9 J.L. & ECON. 135, 145 (1966).

202. Here, the patentee intends to occupy the entire field, even though many of the individual patents may be of little or no use to the patentee, by patenting all varieties or secondary applications of a core invention. This may be done as part of a defensive or blocking strategy. *See, e.g.*, *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 333 (D. Mass. 1953); *United States v. Aluminum Co. of Am.*, 91 F. Supp. 333, 387 (S.D.N.Y. 1950). This strategy was also employed by Du Pont in the 1930's in developing such products as neoprene and nylon:

Du Pont's patent strategy . . . [was] "to patent everything, including minute details of manufacturing processes." . . . Du Pont's patent policy stemmed from the nature of U.S. patent law, which allowed patentees to maintain patents even though such patents were not "worked." . . . That is, they employed their researchers in finding small modifications or variations as well as alternatives to basic patents as a means of protecting a basic patent.

DAVID A. HOUNSHELL & JOHN K. SMITH, JR., *SCIENCE AND CORPORATE STRATEGY: DU PONT R&D, 1902-1980* at 200 (1988).

203. *See Turner, supra* note 12, at 183.

204. Thus, products derived from intellectual property rights tend to require substantial initial investments and entail lower variable costs as to their subsequent reproduction. *See* Richard A. Posner, *Antitrust in the New Economy*, ALI-ABA CONFERENCE, at 2 (Sept. 2000) ("Intellectual property is characterized by heavy fixed costs relative to marginal costs. It is expensive to create but once created the cost of making additional copies is low . . .").

205. AREEDA & KAPLOW, *supra* note 190, at 427; *see also* VAUGHAN, *supra* note 13, at 228-30.

206. *See* Gharrity, *supra* note 10, at 15 ("[A] firm may fail to introduce a new machine to produce a given product because it is estimated that the average total cost of switching over to and using the new machine for the number of years before its predicted obsolescence is not less than the average variable costs involved in continued use of the old machine for this period of time.").

firm may patent and then suppress the new technology until it has to replace its existing production infrastructure due to wear-and-tear or obsolescence.²⁰⁷

In the meantime, why would the firm not license the patent to a competitor? Aside from the desire not to give an advantage to the competition, an established firm will likely face the retooling problem discussed above. If on the other hand, the prospective licensee is a potential new entrant into the market, there are other reasons to suppress. A new entrant into the market could use the patent and build the required new infrastructure immediately before starting production, without the problem of switching costs that the patentee may face.²⁰⁸ If the new technology is superior to the patentee's, the new entrant will gain a first-mover advantage that allows it to gain a foothold in the market at the expense of the patentee.²⁰⁹ By suppressing the patent, the patentee prevents this result.²¹⁰

The new technology may be inferior to the patentee's current product. However, competition with the inferior technology could still drive down the price of the product.²¹¹ A patentee might refuse to license its patents on an inferior technology if doing so would put its competitors in a position to develop improvements or a better technology.²¹² Even though a patentee that licenses its patent will earn licensing revenue, it puts the licensee in a better position to compete immediately when the patent expires.²¹³ Likewise, improvements to an existing technology may be protected by a dependent patent that cannot be utilized without infringing an existing patent on a core technology. If the core patentee refuses to grant a license to the improvement patentee, the improvement patentee will be unable to use

207. See Gilbert & Newberry, *supra* note 11, at 518.

208. See HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE 295 (1994). A similar result may follow if the patent covered the production process itself. Even if the firm did not own the patented production process, it might be willing to pay more for an exclusive license on the patent than would any competitor; it then may not use the patent in order to prevent the potential competitor from doing so. See *id.*

209. See JEAN TIROLE, *Research and Development and Adoption of New Technologies*, in THE THEORY OF INDUSTRIAL ORGANIZATION 393 (1988). Tirole refers to this phenomenon of acquiring patent rights on an innovation in order to avoid competition as "patent shelving." See *id.* at 394.

210. See ROBERT P. MERGES ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 313–14 (2d ed. 2000). A patentee with substantial sunk costs might also respond to a threat posed by a potential new entrant with its own patented technology by underpricing the new entrant, by attempting to acquire the new entrant, or by acquiring an exclusive license on its invention. See *supra* Part III.

211. See McGee, *supra* note 201, at 146.

212. See AREEDA & KAPLOW, *supra* note 190, at 427. The solution to this fear might be a grantback provision in the license for a nonexclusive license of all improvement patents. See *id.* at 427 n.51.

213. See *id.* at 427.

the patent or find a licensee for fear of inviting an infringement suit. This involuntary nonuse by the improvement patentee delays the introduction of the improvement until the core patent expires or the core patentee decides to use or license its patent.

Further, the problem of sunk costs and switching costs is also relevant. One commentator has speculated about cases in which the patentee is not in the same market as the patented technology, but is instead in an upstream or downstream market²¹⁴ that would be affected by use of the patent:

Consider the rumor that Exxon purchased and buried the design for the “momentum engine,” which would tremendously increase automobile engine efficiency (and therefore tremendously decrease the demand for gasoline). It could produce and sell the momentum engine, using the revenues from those sales to offset its loss in gasoline revenues. However, Exxon is not in the engine business and is likely to be less efficient at that business than it is at refining and selling gasoline. Its profit-maximizing course may therefore be to conceal the invention, so that no one else can use it, and to continue to sell gasoline.²¹⁵

This may have been Exxon’s initial motivation in the *Nestler* case, where Exxon saw a downstream market for its petroleum resins in the form of plastic bags and bag nesting devices.²¹⁶

All of these considerations are likely to be magnified when the patentee has monopoly status or market dominance and a constant revenue stream.²¹⁷ A firm in a competitive market will face greater pressure to commercialize an innovation before a rival introduces a competing technology. In a competitive market, innovation is often

214. For instance, suppression of an upstream patent may impede downstream follow-up research, practical application, and technology diffusion. Cf. Arti K. Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77, 125–29 (1999) (discussing the strategic behavior of upstream and downstream patentees as to research and development).

215. MERGES ET AL., *supra* note 210, at 314.

216. *See supra* Part III.

217. It is important to distinguish between market power and firm size in making this point. The industrial organization economist, Joseph A. Schumpeter, contended that large firms were more likely to innovate because they possessed superior access to capital, economies of scale, and the ability to pool risks. *See* JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM AND DEMOCRACY* (1950). Others have argued that large firms are slower to innovate due to bureaucratic inertia or that firm size has no relation to scale of research and development efforts. *See* DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 533 (3d ed. 2000) (summarizing economic research as to correlation between firm size and innovation).

accelerated when several firms race to invent or to innovate first. The resulting gain in being the first to invent or to innovate, and thus the first to patent, may offset any economies of scale in current technologies.²¹⁸ Nevertheless, even a competitive firm may choose to suppress for blocking or fencing purposes to protect a core technology by patenting substitutes that foreclose their use by competitors.²¹⁹

However, because realizing increased profits is a crucial motive for innovating, a patent held by a monopolist or dominant firm can be employed to prevent or slow imitation of the firm's technology by its competitors.²²⁰ The firm patentee has little to gain and much to lose by introducing new inventions immediately, as long as other firms also refrain from doing so.²²¹ A monopolist or dominant firm gains less from innovating than does a competitive firm because the monopolist or dominant firm "replaces itself" in the sense that it must replace its current production processes or existing product.²²² Consequently, a firm with market power²²³ may seek to prevent entry or imitation by a strategy of "defensive" patenting and nonuse.²²⁴ In the alternative, a monopolist in possession of a patented technology may become more concerned with protecting its monopoly position than with innovating or acquiring a new technology.²²⁵ This may lead a

218. Cf. William G. Shepherd, *THE ECONOMIES OF INDUSTRIAL ORGANIZATION* 145 (3d ed. 1990).

219. Cross-elasticity of demand is a key factor in this decision. See WESLEY M. COHEN ET AL., *PROTECTING THEIR INTELLECTUAL ASSETS: APPROPRIABILITY CONDITIONS AND WHY U.S. MANUFACTURING FIRMS PATENT (OR NOT)* 21–24 (Nat'l Bureau Econ. Research, Working Paper No. W7552, 2000).

220. See MORTON I. KAMIEN & NANCY L. SCHWARTZ, *MARKET STRUCTURE AND INNOVATION* 27 (1982).

221. See F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 428 (2d ed. 1980).

222. See TIROLE, *supra* note 209, at 392.

223. Market power is "the power to control prices or exclude competition." *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956). For a detailed discussion of market power, see William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937 (1981).

224. A monopolist that fears that a rival will be the first to invent and then enter the monopolist's market has an incentive to innovate first. If it does so, it maintains its market power; however, if its rival is the first to innovate, the monopolist must now compete. Therefore, the monopolist has more to lose than its rival because the rival loses only its research and development expenditures, while the monopolist loses these expenditures plus its monopoly profits. See CARLTON & PERLOFF, *supra* note 217, at 538. "Not losing is the monopoly's primary aim; it does not care particularly if it makes or implements the new discovery — it only cares that its rival does not. Indeed, if the monopoly makes the discovery first, it may let its patent 'sleep.'" *Id.*

225. Standardization arises when a patented technology is necessary for a competitor's products to be viable alternatives in the market. Thus, patent protection can effectively exclude others from entering and remaining in the market. A patented technology that becomes an industry standard can allow the patentee to forestall improvements on the technology where the improvement involves substantial switching costs in order to modify or adopt existing production processes and infrastructure. This may

firm that is realizing monopoly profits on its current technology to delay replacing it with a superior technology.²²⁶

Similarly, if a monopolist has a choice between using two technologies, and consumers only know about the one that is currently in use, the monopolist may choose to use the inferior technology to increase its profits, keeping the new technology on the shelf until the firm is ready to switch.²²⁷ A monopolist may also decline to make use of or to license a new patent for an inferior technology because it might serve as an imperfect substitute for its existing product. In this instance, the monopolist does not want to “spoil” the current market for the existing product by producing the imperfect substitute because doing so will reduce the demand for and profitability of the existing product.²²⁸ These concerns may also be relevant in oligopolistic markets, where leading firms may resist introducing new technologies to avoid price reductions or inducing new entrants into the market.²²⁹

Each of the above scenarios shares a common thread: a tool designed to “promote the progress of . . . [the] useful arts”²³⁰ is used as a means to assure that a new innovation does not displace existing tech-

be done by acquiring and then suppressing the improvement patent or by demanding supracompetitive license fees that deter licensing. Another risk is that the patentee can “lock in” an inferior technology as a standard by making it more difficult to develop superior alternatives. Cf. Stanley M. Besen & Joseph Farrell, *Choosing How to Compete: Strategies and Tactics of Standardization*, 8 J. ECON. PERSPS. 117, 119–20 (1994) (arguing that an agreed-upon “standard may eliminate competition between technologies [and] . . . channel it into different . . . dimensions, such as price, service and product features”). In addition, firms participating in standards-setting may collude to establish a standard or maintain an existing standard to resist innovation. In time, the standard becomes a sunk cost that can discourage innovation.

226. See KAMIEN & SCHWARTZ, *supra* note 220, at 30. In other words, the firm realizing monopoly profits on its current technology will calculate the profit from the innovation as the difference between its current profits and the profits it could realize from the new technology, whereas the new entrant views the profits from the introduction of the new technology as pure gain. See *id.*

227. See Larry S. Karp & Jeffrey M. Perloff, *The Optimal Suppression of a Low-Cost Technology by a Durable-Good Monopoly*, 27 RAND J. ECON. 346, 360–61 (1996).

228. Lawrence J. White, *A Note on the Influence of Monopoly on Product Innovation*, 86 Q.J. ECON. 342, 344–45 (1972). As one inventor describes:

Sometimes the company has a product that is selling and they don't want your new product to destroy their established market. It is sometimes better for them to pay you to keep your better, but cheaper, solution off the market. They may not be honest enough to tell you that. You must be aware that a company could consider burying your idea as a business strategy and this is a possible reason for a company to be willing to license it.

Greg Mills, *When Inventions are Buried to Protect a Market*, PATENT CAFÉ MAGAZINE (July 30, 2001), http://www.cafezine.com/printable_template.asp?deptid=19&Articleid=435.

229. See BLAIR, *supra* note 16, at 232.

230. U.S. CONST. art I, § 8, cl. 8.

nologies. A final question that naturally arises when analyzing patent suppression is why a firm would not instead keep the technology as a trade secret. Setting aside the reality that this would be easier to do for a process than for a mass-produced product, the answer often turns on whether, in the context of the firm's market and current technology, the firm believes that no other inventor will replicate the same invention. If so, then it may choose trade secret protection to avoid the expense of patenting; if not, then it will patent.²³¹ Thus, although the patent applicant must make an enabling disclosure in the application, the resulting patent will make the invention part of the prior art for novelty and non-obviousness purposes, thereby preventing others from subsequently patenting it or its equivalent.

V. DETERRING PATENT SUPPRESSION

According to the Supreme Court, patents serve three purposes: to promote invention, to encourage development and commercialization of inventions, and to encourage inventors to disclose their inventions.²³² The courts have held, more often than not, that intentional nonuse of patented technology by its owner or licensee is not unlawful, even if the result is anticompetitive. Thus, the rule of *Continental Paper Bag* and *Special Equipment* — that a patent imposes no duty on the patentee to use or license it — has remained intact. Moreover, a patentee that fails to commercialize its invention may even recover lost profits if the patent is infringed.²³³

Such a result, however, places a premium on the property rights aspect of patents at the expense of the patent system's other purpose of stimulating invention and bringing new and useful technologies to market.²³⁴ The threat of liability for damages and lost profits allows a firm with dominant market position to prevent competition by obtaining patents on alternative technologies and then suppressing those

231. See Turner, *supra* note 12, at 185.

232. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974); see also SCHERER, *supra* note 221, at 440.

233. See *King Instruments Corp. v. Perego*, 65 F.3d 941 (Fed. Cir. 1995); *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538 (Fed. Cir. 1995).

234. Cf. *King Instruments Corp.*, 65 F.3d at 947, 958–60 (Neis, J., dissenting). To extend this idea, consider also the risk posed by the so-called “tragedy of the anticommons,” which theorizes that granting too many property rights on an economic resource can lead to its underutilization. See Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998); Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998); see also Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-1995*, 32 RAND J. ECON. 101 (2001) (theorizing that a race to acquire patent portfolios can slow innovation).

patents, which can result in a consumer-welfare loss.²³⁵ Indeed, such a rule amounts to an incentive to suppress in some cases because the patentee's remedies for infringement are identical regardless of whether it uses its patent.

The challenge posed by patent suppression, therefore, is to fashion a practical deterrent that fits within the realities of the current patent system. The prevention of patent suppression is made difficult by the fact that suppression is best understood in hindsight and is not often detectable until it is revealed in an infringement suit or antitrust action. In the meantime, commercially useful technologies, though disclosed in the patent claims and specifications, may be kept on the shelf for the reasons outlined in Part IV. When such inventions finally do enter the market, surrounding factors that may have delayed their arrival are overlooked or disregarded as impossible to prevent. Due to the nature of the problem, the approach to its solution must be multifaceted. This Part discusses a series of measures that, if effectively implemented, can serve the public interest by discouraging patent nonuse and deterring technology suppression.

A. *The Idea of Public Reason*

Every political society must order its priorities. The means for doing so is reason. The liberal notion of public reason, or public justification as it is alternatively known, is based on the need to inform our decision to agree to a particular position as well as provide others with reasons and motives for agreeing.²³⁶ Policymakers argue about what is the right action to pursue. This process requires critical reflection on the reasons advanced to justify those actions and whether those reasons will gain agreement or consensus among others. One of the foremost theorists regarding public reason is John Rawls, who has explained that citizens should be "ready to explain the basis of their actions to one another in terms each could reasonably expect that others might endorse as consistent with their freedom and equality."²³⁷

According to Rawls, the idea of public reason applies to discussions in the public political forum.²³⁸ One important aspect of public reason is reasonable justification. As proposed by Rawls,

235. See Arun Chandra, Note, *King Instruments Corp. v. Perego: Should Lost Profits Be Awarded on Unpatented Products Where Patentee Sits on Its Patents?*, 16 *CARDOZO ARTS & ENT. L.J.* 635 (1998).

236. See *Public Justification*, in *THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY*, at <http://plato.stanford.edu/entries/justification-public> (last visited Apr. 5, 2002).

237. JOHN RAWLS, *POLITICAL LIBERALISM* 218 (1993). Rawls calls this the "principle of liberal legitimacy." *Id.* at 216. For a critique of Rawls' theory, see Elizabeth H. Wolgast, *The Demands of Public Reason*, 94 *COLUM. L. REV.* 1936 (1994).

238. See RAWLS, *supra* note 237, at 215.

[c]itizens are reasonable when, viewing one another as free and equal in a system of social cooperation over generations, they are prepared to offer one another fair terms of cooperation according to what they consider the most reasonable conception of political justice; and when they agree to act on those terms, even at the cost of their own interests in particular situations The criterion of reciprocity requires that when those terms are proposed as the most reasonable terms of fair cooperation, those proposing them must also think it at least reasonable for others to accept them, as free and equal citizens, and not as dominated or manipulated, or under the pressure of an inferior political or social position.²³⁹

Rawls conceived of his theory as relevant to discussion by judges, government officials, and candidates, of what he refers to as “fundamental questions” — voting rights, religious tolerance, equality of opportunity, and property rights — rather than private deliberations.²⁴⁰ Rawls’ justificatory theory is also suggestive as to the issue of patent suppression as a matter of public deliberation.

Justification requires that one formulate reasons to support his or her position in such a way as to gain the agreement of his or her audience.²⁴¹ When called upon to provide a reason for an action taken or a decision made, it is necessary to pause and give consideration to motives and course of thought. In order to formulate reasons in support of a position, the proponent must consider not only the position itself, but also whether it is reasonable or can be stated in reasonable terms. If not, the criterion of reciprocity will not be met and neither the position, nor its proponent, will be considered legitimate or reasonable by the public audience. A position that is unreasonable will not meet this burden. At that point, the proponent faces the choice of not advancing the position, or advancing it and failing to gain the support of the public. Thus, public justification acknowledges respect for other members of society by anticipating and rejecting unreasonable and unsupported positions.²⁴²

As applied to patent suppression, a patentee that chooses not to use or license its patent is currently under no obligation to justify this decision. If the patentee were required to do so, however, the patentee

239. John Rawls, *The Idea of Public Reason Revisited*, 64 U. CHI. L. REV. 765, 770 (1997).

240. *Id.* at 771.

241. Cf. FRED D’AGOSTINO, FREE PUBLIC REASON: MAKING IT UP AS WE GO 23 (1996) (“The problem of public justification is that of determining whether or not a given regime is legitimate and therefore worthy of our loyalty . . .”).

242. Cf. STEPHEN MACEDO, LIBERAL VIRTUES 46–47 (1990).

would face the task described above. The patentee would have to admit to nonuse and refusal to license and then advance a reason to the public as to why it has made these decisions. The patentee's public justification for nonuse would be considered quite reasonable when, for example, the patentee explains that its patented technology is not commercially viable or is obsolete. Other reasonable justifications include no demand for the technology or no offer to license the product. By contrast, it is less likely that the public would endorse as acceptable and reasonable a failure to use or license a patent when an offer to license has been proposed in good faith, or when there is a public interest at stake.

Furthermore, a patentee's obligation to justify nonuse of a patent can be grounded in the nature of the patent as an exclusive right derived from the public itself. The public is the ultimate source of the government's authority to grant a patent, and the public may be ultimately affected by its nonuse. The idea of public reason could be introduced in the patent system quite easily. Every patentee would be required to file an annual statement with the United State Patent and Trademark Office ("USPTO") in which the patentee would indicate whether the invention was being used internally or was licensed for use to another. The patentee would have to list all offers to license. If the patentee was not using the invention, but had received offers to license from others and had refused to do so, the patentee would be required to provide an explanation for the refusal. The annual statement would remain on file with the USPTO for the life of the patent and would be available to the public for examination. The USPTO would have no responsibility to investigate or determine the veracity of the statement.²⁴³

The implementation of this requirement would reaffirm that the patent grant, and the patentee's use or nonuse of that grant, are matters of public interest and deliberation. Reasons for nonuse not considered rational and just by the public would be deemed unacceptable.²⁴⁴ A patentee attempting to suppress a technology would, at the very least, be forced to consider carefully or reconsider its refusal to use or license before submitting it to public scrutiny. Finally, as a matter of public record, the patentee's statement could be of evidentiary value if it is later discovered that the nonuse was part of a larger pattern of patent misuse or anticompetitive conduct.

243. Of course, the patentee would be required to swear or affirm as to the truthfulness of the statements made in the filing, as is done with other documents that must be filed with federal regulatory agencies.

244. Cf. GERALD F. GAUS, *JUSTIFICATORY LIBERALISM* 17 (1996) ("When a person seeks to justify her belief to others, she ordinarily supposes that she has good reasons for it.").

B. The Role of Antitrust Law

It is well-established that patent “rights do not confer a privilege to violate the antitrust laws.”²⁴⁵ As to nonuse of patent rights, a 1955 Report of the Attorney General’s Antitrust Commission concluded: “the patent system . . . relies on the incentive to profit from using a patented invention for which there is public demand. Where these ends are deliberately defeated, there usually is present some anticompetitive design. Then nonuse becomes abuse and antitrust comes into play.”²⁴⁶

Whether the nonuse or refusal to license a patent amounts to patent misuse or a violation of the federal antitrust laws is the subject of much debate. Patent misuse involves conduct that improperly attempts to extend the scope of the patent or abuse the patent rights.²⁴⁷ This is an affirmative equitable defense to an infringement action akin to an “unclean hands” defense.²⁴⁸ Patent misuse has been applied when patentees have attempted to use their patents to fix prices, restrict territories, or tie products illegally.²⁴⁹ Additionally, a court may find patent misuse without finding a violation of antitrust laws.

Although the definition of patent misuse could conceptually encompass the nonuse of a patent, section 271(d)(4) of the Patent Act directs that “[n]o patent owner otherwise entitled to relief for infringement . . . shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of having . . . refused to license or use any rights to the patent.”²⁵⁰ Standing alone, a refusal to

245. *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1325 (Fed. Cir. 2000).

246. ATTORNEY GENERAL’S ANTITRUST COMM. REP. 230 (1955).

247. See ABA SECTION OF ANTITRUST LAW, INTELLECTUAL PROPERTY MISUSE: LICENSING AND LITIGATION 1 (2000).

248. See *id.*

249. See, e.g., *United States Gypsum Co. v. Nat’l Gypsum Co.*, 352 U.S. 457 (1957); *Morton Salt Co. v. G.S. Suppiger*, 314 U.S. 488 (1942);.

250. 35 U.S.C. § 271(d)(4) (1994). The rationale for such a rule lies in the belief that the primary social utility of a patent is in the *disclosure* rather than the diffusion of the invention itself:

[O]nce an inventor discloses an invention and is granted patent protection, he or she is free to distribute the invention described in the patent as he or she sees fit. The invention may be completely suppressed from distribution if the inventor so desires. This power demonstrates the patent law is primarily geared toward the distribution of knowledge and not goods. Because the knowledge flowing from the innovation (contained in the patent document disclosure) is severable from the innovation, the advancement of public knowledge may be served without ever distributing the invention. Others are able to learn from, and expand upon, the innovation without having access to the innovation itself, because the knowledge contained in the innovation is revealed in the patent document.

use or license a patent is neither misuse nor an antitrust violation. The possibility for resort to antitrust law may arise, however, when there is horizontal collusion involving patents or when the patentee holds monopoly power in the relevant market²⁵¹ and unilateral nonuse is employed to extend this power.²⁵²

There is a natural tendency to see an inherent conflict between patent law and antitrust law on the grounds that the former favors the creation of monopolies as incentives or rewards and the latter opposes monopolies as a threat to free competition. However, the conflict as stated reflects two different meanings of the term “monopoly” as well as confusion as to the difference between monopoly *status* and monopoly *conduct*. Patent rights alone do not automatically confer monopoly power on the patentee because the exclusive rights conferred may not necessarily be coextensive with the relevant market. Patented technologies can and often do compete with each other, and such competition will constrain monopoly pricing. As such, a patent only confers monopoly power when competitors cannot offer substitutes for the patented product. Thus, unilateral nonuse is anticompetitive only when it creates or extends this power in the relevant market.²⁵³

However, antitrust law has not proved to be an effective weapon against unilateral patent suppression.²⁵⁴ The decision in *GAF Corp. v. Eastman Kodak Co.*²⁵⁵ is illustrative of the difficulty involved in applying antitrust law to patent suppression. In this case, GAF alleged that Kodak deliberately suppressed its patented Ektachrome film which was processable using the ME-4 process. Because of Kodak’s monopoly power, GAF alleged, photofinishers would not install the ME-4 process so that GAF’s ME-4 processable film would have no

P. McCoy Smith, *Copyright, Suppression and the Problem of the Unpublished Work: Lessons from the Patent Law*, 19 A.I.P.L.A. Q.J. 309, 332 (1991). Such a belief is undermined by the realities of patent drafting, in which the patentee may attempt to reveal only as much as necessary to meet the enablement requirement of 35 U.S.C. § 112, ¶1. For a discussion of the relationship between disclosure and claim scope, see Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990).

251. Monopoly power represents an abundance of power within the relevant market and is not necessarily a function of firm size. See *supra* note 217.

252. A nonusing patentee will face potential antitrust liability only when it has monopoly power. See RAYMOND C. NORDHAUS, *PATENT-ANTITRUST LAW* 93–99 (rev. 2d ed. 1972).

253. See Kevin J. Arquit, *Patent Abuse and the Antitrust Laws*, 59 ANTITRUST L.J. 739, 740 (1991); see also Edmund W. Kitch, *Elementary and Persistent Errors in the Economic Analysis of Intellectual Property*, 53 VAND. L. REV. 1727, 1730–34 (2000) (explaining why patents that confer monopoly market power are rare).

254. See generally Yee Wah Chin, *Unilateral Technology Suppression: Appropriate Antitrust and Patent Law Remedies*, 66 ANTITRUST L.J. 441 (1998); John J. Flynn, *Antitrust Policy, Innovation Efficiencies, and the Suppression of Technology*, 66 ANTITRUST L.J. 487 (1998).

255. 519 F. Supp. 1203 (S.D.N.Y. 1981).

market. The district court rejected this claim, stating: “[E]ven if the court were to accept the proposition that a monopolist’s failure to introduce a new product could constitute willful maintenance of its monopoly power, the ability of the judicial system to determine whether a product should have been marketed and, if so, when, is severely limited.”²⁵⁶

In the *Alling* and the *Johnson & Johnson* cases previously discussed,²⁵⁷ the plaintiff’s lack of standing precluded an antitrust remedy. Antitrust remedies came into play only when the patent suppression occurred as part of unlawful and collusive horizontal conduct, as in the many cases that implicated Standard Oil and General Electric, or was linked to predatory enforcement litigation, as in *Kobe*. These cases affirm the general rule that nonuse or refusal to license patent rights alone will not establish an antitrust violation,²⁵⁸ unless the patent was fraudulently obtained or was coupled with other unlawful conduct, such as monopolization or a conspiracy to monopolize.²⁵⁹

By contrast, the accumulation of patents, particularly blocking patents, by a firm with monopoly power can be a marker of unlawful monopolization. Although “[t]he mere accumulation of patents, no matter how many, is not in and of itself illegal,”²⁶⁰ monopolizing conduct can include a patentee’s accumulation of blocking patents for the purpose of suppressing a new technology that would compete with its existing technology. Alternatively, this might involve a horizontal agreement among competitors or the members of a patent pool to refuse to use or license a patent in order to limit competition by sup-

256. *Id.* at 1232.

257. *See supra* notes 126–52 and accompanying text.

258. In some cases, a patent may equate to power in the relevant market. A key element in proving anticompetitive conduct in an antitrust action is proof of the defendant’s market power, defined by the Supreme Court as “the power to control prices or exclude competition.” *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391–92 (1956). The Supreme Court has suggested that ownership of a valid patent confers a presumption of market power, allowing the patentee to raise prices above competitive levels without a concurrent loss in sales. *See Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984); *United States v. Loew’s, Inc.*, 371 U.S. 38 (1962); *International Salt Co. v. United States*, 332 U.S. 392 (1947). More likely, this presumption should arise only in markets where the patent creates or defines the market, or where the patentee has achieved market dominance even before the patent was granted.

259. *See SCM v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981). There is no duty to license, unless a group of competitors with market power pool or cross-license their patents. *See LICENSING GUIDELINES, supra* note 181, at § 2.2. Under the Guidelines, pooling arrangements are seen as “often procompetitive” because they can promote the diffusion of technology by clearing blocking positions, avoiding costly infringement litigation, integrating complementary technologies, and reducing transaction costs, though concerns arise when pools harm competition between actual or potential competitors. *See id.* § 5.5, ¶1.

260. *Automatic Radio Mfg. Co. v. Hazeltine Research, Inc.*, 339 U.S. 827, 834 (1950).

pressing patents or blocking competing technologies.²⁶¹ When this occurs and the pooling firms possess monopoly power, entry barriers are so high that both competition and further invent-around research may be deterred.²⁶² Even when there is such an agreement, however, the evil to be remedied is the anticompetitive collusion, rather than the patent suppression itself.²⁶³

Thus, antitrust law has played a collateral role in deterring patent nonuse leading to technology suppression. When the nonuse is unilateral and the patentee is not a monopolist, antitrust violations are unlikely. Nonetheless, as the cases discussed above demonstrate, there is often an anticompetitive or predatory purpose underlying patent suppression, and in those cases where other unlawful conduct is alleged, greater weight should be accorded patent suppression in assessing whether there has been an antitrust violation. When the patent suppressed would otherwise have been put to use, this conduct should be treated as exclusionary and evidence of monopolization.²⁶⁴ When a firm has market power but has not otherwise engaged in other conduct

261. Areeda and Turner conclude that patent nonuse *alone* cannot lead to a sustainable claim of monopolization under section 2 of the Sherman Act:

where the unused invention would not be practiced even if it were owned by a rival—as where an unused patented process is so inefficient that the resulting product could not be profitably sold even at the product price actually being charged by the monopolist . . . [or] where the un used patent is an improvement patent that cannot be practiced without infringing the monopolist's basic patent.

3 PHILLIP AREEDA & DONALD F. TURNER, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* 129 & 129 n.3 (1978).

262. For a review of the antitrust implications under such circumstances, see James B. Kobak, Jr., *Antitrust Treatment of Refusals to License Intellectual Property*, in *INTELLECTUAL PROPERTY ANTITRUST* 603–44 (2001); see also Sharon Brawner McCullen, Comment, *The Federal Circuit and the Ninth Circuit Face-Off: Does a Patent Holder Violate the Sherman Act by Unilaterally Excluding Others from a Patented Invention in More than One Relevant Market?*, 74 *TEMP. L. REV.* 469 (2001).

263. This point is illustrated in the case of *United States v. Singer Manufacturing Co.*, 374 U.S. 174 (1963), where the United States brought an antitrust action against Singer, the sole manufacturer of sewing machines in the U.S. market. The Justice Department alleged that Singer had conspired with its Swiss and Italian competitors to exclude Japanese zigzag sewing machines from the U.S. market. This was done through cross-licensing agreements under which they agreed not to oppose each other's patent applications, and the Swiss manufacturer assigned its U.S. patent to Singer. It was then Singer's purpose to sue Japanese manufacturers so that it could suppress the allegedly infringing Japanese zigzag sewing machines that competed with its own zigzag machine. The Supreme Court held that the Sherman Act had been violated because Singer and the Swiss and Italian manufacturers colluded by aggregating their patents in order to suppress Japanese competition in the U.S. market. See *id.* at 194–97.

264. See AREEDA & TURNER, *supra* note 261, at 133 (agreeing that where the unused patent would have otherwise been used, a monopolization claim may be viable, but that internal invention, patenting, or non-licensing of such patents should not be an exclusionary practice).

considered unlawful under the antitrust laws, its acquisition of a potential or actual competitor's patent rights with the intent to suppress the patent is anticompetitive as well as against the public interest.²⁶⁵ In such cases, the remedy of compulsory licensing may have a role to play.

C. Compulsory Licensing in the Public Interest

Although the above measures may be useful in shining the spotlight on patent suppression, there is a need to better align the incentives of the patent system with the public interest in technology diffusion and competition. As such, a long-term approach to the problem of patent suppression should involve the use of compulsory licensing, whereby a court would order a patentee that is not using its patent to license the patent to another who will make use of it.²⁶⁶ Such a mandate would probably greatly reduce the incidence of patent suppression and persuade firms to overcome conflicts between blocking patents.

Under this approach, the federal government or any interested person could, at any time after the elapse of a certain period of time from the date that the patent was granted, challenge a nonuse of a patent as anticompetitive or as against the public interest and request that the patentee be ordered to license the patent in return for a reasonable royalty. The court could compel licensing if (1) it finds that a patentee has suppressed a patent with the purpose to unduly restrain trade or lessen competition and that (2) the alleged competitive harm stems from the nonuse and refusal to license. In such a case, the court would be called upon to balance the patentee's exclusive right against the public interest in promoting the commercialization of inventions and greater competition in the particular technology market under consideration.

Initially, in applying this standard, the court would need to define the relevant market. In most instances, the market will be one that is different from or broader than the claimed subject matter of the patented technology and might include close substitutes, upstream or

265. The assumption is that the most obvious evidence of suppression is found where the patentee is not using the patent and "there is a willingness on the part of others to develop the unused inventions . . ." VAUGHAN, *supra* note 13, at 232.

266. The remedy of compulsory licensing has been analogized to the fair use doctrine applied in copyright law. See Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177 (2000) (offering one solution to the refusal to license problem: the adoption of a fair use defense to certain types of patent infringement); Dan L. Burk, *Patenting Speech*, 79 TEX. L. REV. 99, 158-60 (2000) (arguing that the impact on the public interest in granting or denying injunctive relief can lead to greater use of compulsory licensing at a reasonable royalty as a form of patent fair use).

downstream markets, and markets for the products or services that result directly from the application of the patent. Next, the court would establish that the nonuse and refusal to license the patent has adversely affected competition in the relevant market. To prove this, it would be necessary to demonstrate that the patentee possesses market power in the relevant market²⁶⁷ and that the patent is either an essential resource needed to participate in the relevant market or that it is in the public interest that a license be granted. In the latter instance, the public interest would be implicated if the suppression was impeding further innovation,²⁶⁸ if there was a measurable demand for the technology that was otherwise unmet due to the nonuse, or if the invention or the innovation was necessary to protect the public welfare, health, or safety.

In some cases of patent nonuse accompanied by unilateral refusals to license, this standard will prove exacting. At the same time, it is more flexible than current antitrust and patent misuse law in that it accords greater weight to the public interest in technology commercialization and competition. The remedy of compulsory licensing is a key component to this approach. It is therefore worthwhile to examine this remedy more closely and then consider the scope of public interest considerations that will support it.

1. The Remedy of Compulsory Licensing

Compulsory licensing in the name of the public interest is permitted under the Paris Convention for the Protection of Industrial Property (“Paris Convention”)²⁶⁹ and the GATT Agreement on Trade-

267. Recall that the Supreme Court has suggested that patent ownership may create a presumption of market power. *See supra* note 258. The Justice Department and the FTC Intellectual Property Licensing Guidelines reject this presumption. *See LICENSING GUIDELINES, supra* note 181, at § 2.2. The author also rejects this presumption in proposing the standard described in the main text and believes that a finding of market power, in conjunction with the other factors discussed, is a prerequisite to implementation of compulsory licensing.

268. The court would have to be satisfied that the suppression was inhibiting further innovation and not merely preventing the production of existing technologies before imposing a remedy. This factor could be proved if enforcement of the nonused patent had created a substantial disincentive to invest in the research and development of alternative technologies that could compete with the patented technology.

269. Article 5 of the Paris Convention, states:

1. Member states may legislate measures providing for the grant of compulsory licenses to prevent abuses of the exclusive rights conferred by the patent, for example for failure to work.
2. Forfeiture of the patent will not be provided for except where the grant of compulsory licenses is not sufficient to prevent abuses. Forfeiture or revocation of a patent will not be instituted before the expiration of two years from the grant of the first compulsory license.

Related Aspects of Intellectual Property Rights (“TRIPs Agreement”)²⁷⁰ to both of which the United States is a signatory.²⁷¹ Under article 5 of the Paris Convention, if a patent is not worked within the patent granting country, that member country's government may enact legislation permitting that government to issue a compulsory license to a firm that desires to use the patent in that country.²⁷² According to the Convention, member states may enact measures providing for the grant of nonexclusive compulsory licenses to prevent abuses of patent rights, including failure to work a patent.²⁷³ A compulsory license may not be applied for on the ground of failure to work a patent until four years have passed from the date of the patent application or three years from the date that the patent is issued, whichever is later.²⁷⁴ The court may deny a compulsory license if the patentee can justify the nonuse by legitimate reasons, which may include legal, economic, or technical obstacles that make it impossible to use the patent.²⁷⁵ The

3. A compulsory license may not be applied for on the ground of failure to work or insufficient working before the expiration of three years from the date of application for the patent, or four years from the date of the grant of the patent whichever period expires last. It shall be refused if the patentee justifies his inaction by legitimate reasons. Such compulsory license shall be non-exclusive and shall not be transferable even in the form of the grant of a sub-license except with that part of the enterprise or goodwill which exploits such license.

Convention for the Protection of Industrial Property, Mar. 20, 1883, Art. 5(A)(2), (4), 25 Stat. 1372, T.S. No. 379 (at Paris) (as revised: Dec. 14, 1900, 32 Stat. 1936, T.S. No. 411 (at Brussels); on June 2, 1911, 38 Stat. 1645, T.S. No. 579 (at Washington); on Nov. 6, 1925, 47 Stat. 1789, T.S. No. 834, 74 L.N.T.S. 289 (at The Hague); on June 2, 1934, 53 Stat. 1748, T.S. No. 941, 192 L.N.T.S. 17 (at London); on Oct. 31, 1958, 13 U.S.T. 1, T.I.A.S. No. 4931 (at Lisbon); on July 14, 1967, 21 U.S.T. 1583 and 24 U.S.T. 2140, T.I.A.S. Nos. 6923 and 7727 (at Stockholm)) (hereinafter “Paris Convention”).

270. Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), including Trade in Counterfeit Goods of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT), art. 31(a), *reprinted in* 47 PATENT, COPYRIGHT & TRADEMARK REP. (BNA) 230 (Jan. 13, 1994) (hereinafter “TRIPs”).

271. For a comparison of the role of compulsory licensing as a remedy for patent abuse in the Paris Convention and the TRIPs Agreement, see Joseph Straus, *Implication of the TRIPs Agreement in the Field of Patent Law*, in FROM GATT TO TRIPs: THE AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS 167–75 (1996); see also MICHAEL D. SCOTT, COMPULSORY LICENSING OF INTELLECTUAL PROPERTY IN INTERNATIONAL TRANSACTIONS (1988).

272. See Paris Convention, *supra* note 269, art. 5(A)(2).

273. See *id.* The Members of the Convention may define “failure to work” at their discretion. “Normally, working a patent will be understood to mean working it industrially, namely by manufacture of the patented product, or industrial application of a patented process.” See GEORG H.C. BODENHAUSEN, GUIDE TO THE APPLICATION OF THE PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY, AS REVISED AT STOCKHOLM IN 1967, at 71 (1968).

274. Paris Convention, *supra* note 269 art. 5(A)(4).

275. See BODENHAUSEN, *supra* note 273, at 73.

Convention makes clear that the purpose of having a compulsory licensing statute is to protect intellectual property from being suppressed or neglected within the country of interest simply because the owner is unwilling or unable to exploit it.²⁷⁶

Pursuant to the TRIPs Agreement, member countries are allowed to implement measures to “prevent the abuses which might result from the exercise of the exclusive rights conferred by the patent.”²⁷⁷ Article 30 of the TRIPs Agreement allows for “limited exceptions to . . . exclusive rights” when needed “to protect public health and nutrition, and to promote the public interest in sectors of vital importance”²⁷⁸ and to prevent “abuse of intellectual property rights.”²⁷⁹ Such abuses include the imposition of unreasonable commercial terms and unreasonable trade practices that “adversely affect the international transfer of technology.”²⁸⁰ In defining the scope of the public interest, article 7 stresses the “promotion of technological innovation and . . . the transfer and dissemination of technology . . . in a manner conducive to social and economic welfare,” while article 8(1) extends the concept of the public interest beyond public health and nutrition to those that are “of vital importance to . . . socio-economic and technological development” and to “the international transfer of technology.”²⁸¹ TRIPs article 31 also allows countries to determine the bases

276. *See id.*

277. TRIPs, *supra* note 270, art. 31.

278. *Id.* art. 8(1). In November of 2001, the Ministerial Conference of the World Trade Organization in Doha, Qatar, reaffirmed the availability of compulsory licenses as a means for protecting public health:

4. We agree that the TRIPS Agreement does not and should not prevent Members from taking measures to protect public health. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted and implemented in a manner supportive of WTO Members' right to protect public health and, in particular, to promote access to medicines for all...

b. Each Member has the right to grant compulsory licenses and the freedom to determine the grounds upon which such licenses are granted.

c. Each Member has the right to determine what constitutes a national emergency or other circumstances of extreme urgency, it being understood that public health crises, including those relating to HIV/AIDS, tuberculosis, malaria and other epidemics, can represent a national emergency or other circumstances of extreme urgency.

WTO Doha Ministerial Conference, *Declaration on the TRIPS Agreement and Public Health*, (Nov. 14, 2001), at http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm.

279. TRIPs, *supra* note 270, art. 8(2); *see also id.* art. 31(b).

280. *Id.* art. 8(2); *see also id.* art. 40.

281. *Id.* arts. 7 & 8(1). “The TRIPS Agreement merges th[e] broader concept of abuse with the public interest exception for purposes of compulsory licensing under article 31.” J.H. Reichman, *Universal Minimum Standards of Intellectual Property*

for compulsory licensing and does not limit the members' right to establish compulsory licensing for grounds other than those mentioned so long as the remedy does not discriminate on the basis of the field of technology.²⁸²

Consonant with the Paris Convention and the TRIPs Agreement, the overwhelming majority of countries that belong to the World Trade Organization have enacted compulsory licensing provisions as part of their patent laws.²⁸³ The three most common compulsory licensing provisions apply where a dependent or improvement patent is being blocked, where a patent is not being worked, and where an invention relates to food or medicine.²⁸⁴ In addition, some countries resort to compulsory licensing as a remedy for antitrust or misuse.²⁸⁵ A study found that compulsory licenses granted in the name of the public interest have fallen into three principal categories: "(1) inventions which will effect an improvement in the balance of trade or in industrial employment of a country; (2) inventions which promote the safety and rationalization of industrial production; and (3) inventions in the sphere of public health."²⁸⁶

Protection Under the TRIPs Component of the WTO Agreement, 29 INT'L LAWYER 345, 355 (1995).

282. See TRIPs, *supra* note 270, art. 27(1). The terms of the compulsory patent license must be a nonexclusive, non-transferable license with limited authorization to the "supply of the domestic market of the Member [state] authorizing such use." *Id.* art. 31(c)–(f). Additionally, the patent owner will receive "adequate remuneration" based on the economic value of the authorization. *Id.* art. 31(h). Any decision relating to the remuneration is subject to judicial review or other independent review in that Member. *Id.* art. 31(j). For a detailed discussion of compulsory licensing under TRIPs art. 31, see Carlos Correa, *The GATT Agreement on Trade-Related Aspects of Intellectual Property Rights: New Standards for Patent Protection*, 16 EURO. INTELL. PROP. REV. 327, 331–33 (1994).

283. Typically, these provisions require that a patent be worked by its holder or a licensee. See Gianna Julian-Arnold, *International Compulsory Licensing: The Rationales and the Reality*, 33 IDEA: J.L. & TECH. 349, 372–95 (1993) (summarizing the compulsory licensing laws of various countries); Michael Scott, *Compulsory Licensing of Intellectual Property in International Transactions*, 10 EUR. INTELL. PROP. REV. 319 (1988) (discussing world compulsory license laws).

284. See Julian-Arnold, *supra* note 283, at 349–54. For an antitrust analysis of the approach to patent suppression in Europe, see Maurits Dolmans, *Restrictions on Innovation: An EU Antitrust Approach*, 66 ANTITRUST L.J. 455 (1998). In the United States, insufficient working, patent dependency, or consumer pricing do not presently constitute a sufficient basis for granting a compulsory license on public interest grounds. See Friedrich-Karl Beier, *Exclusive Rights, Statutory Licenses and Compulsory Licenses in Patent and Utility Model Law*, 30 INT'L REV. INDUS. PROP. & COPYRIGHT L. 251, 265 (1999).

285. See Julian-Arnold, *supra* note 283, at 350.

286. See STAFF OF THE SUBCOMM. ON PATENTS, TRADEMARKS, & COPYRIGHTS OF THE SENATE COMM. ON THE JUDICIARY, 85TH CONG., *COMPULSORY LICENSING OF PATENTS UNDER SOME NON-AMERICAN SYSTEMS* 45 (Comm. Print 1959).

Generalized compulsory licensing of patents in the United States has been repeatedly proposed²⁸⁷ but has never been enacted by Congress.²⁸⁸ Those who oppose compulsory patent licensing have most often objected on the grounds that such a requirement would reduce the incentive to develop and disclose new inventions.²⁸⁹ However,

287. Various proposals have spelled out the mechanics of a compulsory licensing program. See, e.g., Martin J. Adelman, *Property Rights Theory and Patent-Antitrust: The Role of Compulsory Licensing*, 52 N.Y.U. L. REV. 977 (1977); Tom Arnold & Paul Janicke, *Compulsory Licensing Anyone?*, 55 J. PAT. OFF. SOC'Y 149 (1973); A. Jason Mirabito, *Compulsory Patent Licensing for the United States: A Current Proposal*, 57 J. PAT. OFF. SOC'Y 404 (1975). These authors generally agree that patent owners should be allowed a period of exclusivity of three to four years. Evidence of bad faith or anticompetitive behavior and a demonstration of how the public interest would be served by the invention are also required. Once these conditions have been met, a reasonable royalty can be determined. Royalties should account for research, development, and related legal costs, risks undertaken in first producing the invention, potential market price and profit margin, and advertising and administrative expenses. In particular, Mirabito proposes that a body within the USPTO handle compulsory licensing, hearing evidence for and against the grant of a license. The prospective licensee would be required to show that he has attempted but failed to obtain a voluntary license from the patentee. The license, if granted, would be withdrawn if the licensee failed to utilize the invention. This body would also set a royalty rate that reflected the patentee's R&D expenditures. See Mirabito, *supra*, at 408-09.

288. See GEORGE E. FOLK, PATENTS AND INDUSTRIAL PROGRESS 257-67 (1942); COMPULSORY LICENSING OF PATENTS UNDER SOME NON-AMERICAN SYSTEMS, *supra* note 286. Although compulsory licensing provisions were considered for possible incorporation into the 1952 revision of the Patent Act, they were omitted before the final bill was circulated. See House Committee on the Judiciary, Proposed Revision and Amendment of the Patent Laws: Preliminary Draft, 81st Cong., 2d Sess., 91 (Comm. Print 1950); see also Thomas R. Powell, *The Exclusive Right of the Patentee — Should the Right or Power to Exclude Others Be Dependent on Sale or Licensing by the Patentee?*, 58 HARV. L. REV. 726 (1945).

289. See Mark Laurosech, *General Compulsory Patent Licensing in the United States: Good in Theory, But Not Necessary in Practice*, 6 SANTA CLARA COMPUTER & HI. TECH. L.J. 41 (1990). The premise here is that invention and innovation would be reduced without the reward of a twenty-year term of exclusivity. Once again, this position is bound closely with the linkage of patent protection to property rights theory. This in turn suggests a second objection, which views compulsory licensing as unconstitutional, arguing that a patent is an exclusive property right that cannot be appropriated or be taken without just compensation. See Cole M. Fauver, Comment, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 NW. J. INT'L L. & BUS. 666, 678 (1988) ("The constitutional power to grant such an exclusive right . . . may not carry with it the power either to encroach on that right or to grant a right conditioned upon subsequent interference."); see also Frank Schechter, *Would Compulsory Licensing of Patents Be Unconstitutional?*, 22 VA. L. REV. 287 (1936) From an implementation standpoint, it can be argued that patentees are put at a negotiating disadvantage with respect to potential licensees since they know that a license must be granted. On the other hand, it is also arguable that firms will be reluctant to obtain compulsory licenses. For instance, assume that one firm undertakes the time and cost of proving that another firm's patent is being suppressed in order to acquire a compulsory license. If this effort is successful, other firms can obtain the compulsory license at a lower cost because they do not have to first prove that the patent is being suppressed. Thus, the first firm bears more of the costs than the firms that follow. Each potential licensing firm would prefer that another firm incur the

several studies have cast serious doubt on or contradicted such claims.²⁹⁰ Indeed, a compulsory licensing remedy can serve as a strong incentive for patentees and exclusive licensees to use the patent or negotiate a license when they might otherwise shelve a technology.²⁹¹ It may also introduce dynamic efficiencies by reducing expenditures on uneconomic invent-around R&D.

2. The Importance of the Public Interest.

This Article does not propose that a general scheme of compulsory licensing be adopted as a means of deterring patent nonuse and refusals to license. Rather, as described above, compulsory licensing should be applied when it is in the public interest and is consistent with the conditions set forth in the Paris Convention and TRIPs Agreement.²⁹² More importantly, this proposal builds on established decisional and statutory precedents in the United States that explicitly invoke public interest considerations in addressing patent nonuse and refusals to license. Indeed, the public interest has been an exceptional but recurring critical factor in mandating use or licensing of patents in the United States.

Before the Supreme Court in *Continental Paper Bag* affirmed the entry of a permanent injunction in favor of a nonusing patentee, the Court considered whether the patentee's "nonuse was unreasonable" and whether "the rights of the public were involved."²⁹³ The Court left open the possibility that there might be a case "where, regarding the situation of the parties in view of the public interest, a court of equity

expense of procuring the first compulsory license, with the result that all firms will be hesitant to seek out compulsory licenses. See Richard J. Gilbert, *Patents, Sleeping Patents, and Entry Deterrence*, in STRATEGY, PREDATION, AND ANTITRUST ANALYSIS 205-69 (Steven C. Salop ed., 1981).

290. A statistical study of seventy companies not only showed no negative effect on R&D in firms subject to compulsory licensing, but also a significant increase in R&D investment compared to firms not subject to compulsory licensing. See F.M. Scherer, *Comment in COMPETITION POLICY AND INTELLECTUAL PROPERTY RIGHTS IN THE KNOWLEDGE-BASED ECONOMY* 105-08 (1998). In an earlier study, the same researcher posed the question: if the patentee were required to license all of its patents to all applicants willing to pay reasonable royalties, what result? Fifty-two firms claimed there was no effect; eighteen firms decreased R&D expenditures, while four firms increased R&D and three firms discontinued all R&D. See F.M. SCHERER ET AL., PATENTS AND THE CORPORATION: A REPORT ON INDUSTRIAL TECHNOLOGY UNDER CHANGING PUBLIC POLICY 124 (2d ed. 1959). For a comprehensive study of the effect of compulsory licensing on patenting and innovation by this researcher, see F.M. SCHERER, THE ECONOMIC EFFECTS OF COMPULSORY PATENT LICENSING (1977).

291. For further consideration of this point, see Joseph A. Yosick, Note, *Compulsory Patent Licensing for Efficient Use of Inventions*, 2001 U. ILL. L. REV. 1275, 1293-1301.

292. See *supra* notes 269-82 and accompanying text.

293. 210 U.S. 405, 429 (1908).

might be justified in withholding relief by injunction.”²⁹⁴ Although permanent injunctive relief is not an entitlement under the Patent Act, a patentee who is successful in proving infringement may seek an injunction to prevent continuing infringement.²⁹⁵ When a balancing of the equities demonstrates that the public interest will suffer serious harm or inconvenience as a result, courts will deny injunctive relief.²⁹⁶ The courts have long employed this balancing of harms approach to deny injunctive relief where they have concluded that the injunction will lead to greater injury to the infringer than benefit to the patentee.²⁹⁷

In a few early cases involving nonused patents, courts exercised their authority to deny injunctive relief in the name of the public interest. In *Bliss v. Brooklyn*,²⁹⁸ an owner of a patent on a fire hose coupling, which he chose not to use or license, was unable to obtain an injunction against the city’s use of the coupling. The court reasoned that the safety of its citizens was involved because the coupling was necessary for the city’s use in preventing fires.²⁹⁹ In another infringement case, a court gave a narrow construction to nonused patent claims in an infringement suit.³⁰⁰ Moreover, some courts exercised their equitable powers to limit the scope of injunctive relief against infringing defendants who had a substantial capital investment that would be lost by the enforcement of a nonused patent.³⁰¹ One commentator has observed that:

294. *Id.* at 430.

295. *See* 35 U.S.C. § 283 (1994); *see also* *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989).

296. *See Hybritech Inc. v. Abbott Labs.*, 849 F.2d 1446, 1458 (Fed. Cir. 1988) (“[A]lthough there exists a public interest in protecting rights secured by valid patents, the focus of the district court’s public interest analysis should be whether there exists some critical public interest that would be injured by the grant of preliminary relief.”); *see also* John Leubsdorf, *The Standard for Preliminary Injunctions*, 91 HARV. L. REV. 525, 540–42 (1978).

297. *See* MARTIN J. ADELMAN, 4 PATENT LAW PERSPECTIVES § 5.3[1], at 152.66–67 (1999); *see also* Turner, *supra* note 12, at 205–09 (proposing that a nonusing patentee be denied a preliminary injunction against an infringer). The amount of damages may be limited as well. *See Hybritech Inc. v. Abbott Laboratories*, 4 U.S.P.Q.2d 1001 (D. Cal. 1987), *aff’d* 849 F.2d 1446 (Fed. Cir. 1988) (limiting damages when public harm resulted from nonuse of medical device).

298. 3 F. Cas. 706 (C.C.E.D.N.Y. 1871) (No. 1,544); *accord* *Ewart Mfg. Co. v. Baldwin Cycle-Chain*, 91 F. 262 (D. Mass. 1898); *see also* *Allied Research Prods., Inc. v. Heatbath Corp.*, 300 F. Supp. 656, 657 (N.D. Ill. 1969) (denying a permanent injunction to a patentee “who refuses to make use of a patent, or to license”).

299. *See Bliss*, 3 F. Cas. at 707.

300. *E.g.*, *Westinghouse Elec. & Mfg. Co. v. Toledo, P.C. & L. Ry. Co.*, 172 F. 371, 372 (6th Cir. 1909) (“The validity of the patent . . . is not affected by its nonuser . . . [b]ut it may be said to have a bearing on its construction . . . [and] the patent should not be given a broad or liberal construction.”)

301. *See, e.g.* *Landis Tool Co. v. Ingle*, 286 F. 5, 7 (3d Cir. 1923) (“[I]t would seem that enforcement of the injunction would cause much greater injury to the defen-

[t]he spirit that animates these cases grew from the same sensibility underlying the ancient doctrine of waste: it was a shame to let an idle patent prevent the defendant from using technology to do the great work envisioned in the Constitution . . . to bring new technology into actual use as quickly and thoroughly as possible. Toward this end, courts sought to free the defendant's productive energies, yet still recognize the legitimacy of the property right, by coupling the denial of an injunction with an accounting of the defendant's profits — a “reasonable royalty,” in other words.³⁰²

Though *Continental Paper Bag* rejected a broad application of this defense, a few courts subsequently applied it when the public interest was clearly at stake.³⁰³ The Seventh Circuit vacated an order enjoining the infringement of a patent where the result would create a threat to public health without any substantial benefit to the patentee. In *City of Milwaukee v. Activated Sludge*,³⁰⁴ the inventor of an apparatus for treating raw sewage by aeration sued the City of Milwaukee for patent infringement. The patentee was not using or licensing its patent. The court agreed that the patent had been infringed but refused to allow a permanent injunction. The court believed that enjoining the city would have led to the closing of the sewage plant and would have

dants than benefit to the [nonusing] complainant.”); *Electric Smelting & Aluminum Co. v. Carborundum Co.*, 189 F. 710, 711 (C.C.W.D. Pa. 1900) (“[W]hile complainant was entitled to a decree, it should be so framed as not to subject the respondent to any avoidable loss.”); *Dorsey Harvester Revolving-Rake Co. v. Marsh*, 7 F. Cas. 939, 945 (C.C.E.D. Pa. 1873) (“The defendants have an extensive establishment, and a large capital invested in it . . . [so that a] sudden stoppage of it would be disastrous to them, and would not benefit the [nonusing] complainant.”).

302. Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900-2000*, 88 CAL. L. REV. 2187, 2219–20 (2000). Merges also theorizes that this “view of the vigorous role of patents in national progress” rule was jettisoned when it “came into conflict with certain realities of the new R&D environment,” namely, when “corporate R&D managers began to understand that patents could be thought of as ‘options.’” *Id.* at 2220–21.

303. See FIRST REPORT OF THE NATIONAL PATENT PLANNING COMMISSION, H.R. DOC. NO. 239, at 10 (78th Cong., 1st Sess. 1943) (Recovery for infringement should be limited to “reasonable compensation without prohibiting the use of the patented invention whenever the court finds that the particular use of the invention in controversy is necessary to the national defense or required by the public health or public safety.”).

304. 69 F.2d 577 (7th Cir. 1934).

forced the city to dump the raw sewage into Lake Michigan, resulting in pollution and a public health risk.³⁰⁵

Similarly, in *Vitamin Technologists v. Wisconsin Alumni Research Foundation*,³⁰⁶ the inventor of a process that enriched oleomargarine with vitamin D through irradiation refused to license the process so as not to compete with butter, which naturally contains vitamin D. In essence, the patentee was seeking to protect the dairy industry and the butter market, which would have been adversely affected by use of the patented process. Although the Ninth Circuit invalidated the patent and thereby avoided addressing the issue of suppression, it did note:

Suppression of the use of the property in a patent has often been held the right of the holder of the patent monopoly, but the question has not been raised in connection with the public interest in restoring the health of the afflicted. . . . Whether, however, a case cannot arise where, regarding the situation of the parties in view of the public interest, a court of equity might be justified in withholding relief by injunction, we do not decide.³⁰⁷

305. *See id.* at 579. Protection of the public health remains the most frequently cited and least controversial reason for resorting to compulsory licensing. For instance, the proposed Public Health Emergency Medicines Act, H.R. 3235, 107th Cong. (2001), would amend the Patent Act to grant the Secretary of Health and Human Services and the FTC, respectively, the right to establish compulsory licensing, without authorization of the right holder, for use of patented inventions relating to health care upon a determination: (1) that the patent holder, contractor, licensee, or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in a field of use; (2) that establishing other use of the subject matter of the patent is necessary to alleviate health or safety needs that are not adequately satisfied by the patent holder, contractor, licensee, or assignee; (3) that the patent holder has engaged in specified anticompetitive behavior, including excessive pricing; (4) that an invention covered by a patent cannot be exploited without infringing upon the first patent, insofar as the invention claimed in the second patent involves an important technical advance; or (5) that the invention claimed in the patent is needed for research purposes that would benefit the public health and is not licensed on reasonable terms and conditions. The bill proposes that compensation paid to patent holders should be "reasonable," accounting for such criteria as how much the patent holder invested and risked in the drug's development and how significant the government contribution was to the drug's research and development. It also would permit the government to authorize generic producers to manufacture on-patent drugs in the United States for export to countries undergoing public health emergencies. For a discussion of compulsory patent licensing in the context of public health concerns as permitted under the Paris Convention and TRIPs, see Frederick M. Abbott, *The TRIPs-Legality of Measures Taken to Address Public Health Crises: A Synopsis*, 7 WID. L. SYMP. J. 71 (2001).

306. 146 F.2d 941 (9th Cir. 1945).

307. *Id.* at 946.

The court also pointed to evidence demonstrating the importance of the patent in preventing scurvy and rickets in low-income consumers, stating in dicta that the refusal to license the patent was a “public offense.”³⁰⁸

Likewise, the plaintiff in *Foster v. American Machine & Foundry Co.*³⁰⁹ was the holder of a patent on an impeding device used in machinery designed for the welding of sheet metal tubing. Although he did not manufacture the device or otherwise use his patent, he sued for infringement when he discovered that the defendant had included the impeder as a component in its “Thermatool” brand welding machinery.³¹⁰ The district court refused to permanently enjoin the defendant and instead granted a compulsory license and ordered payment of a reasonable royalty.³¹¹ On appeal, the Second Circuit affirmed, reasoning that the outcome was a “benefit to the patentee who has been unable to prevail in his quest for injunctive relief. To grant him a compulsory royalty is to give him half a loaf. In the circumstance of his utter failure to exploit the patent on his own, that seems fair.”³¹²

There are also several statutory contexts in which a patent owner may be obligated to license his or her invention because it has been deemed to be in the public interest.³¹³ For instance, Congress has enacted several statutes that provide for compulsory licensing of pat-

308. *Id.* at 955–56.

309. 492 F.2d 1317 (2d Cir. 1974).

310. *See id.* at 1319.

311. *See id.*

312. *Id.* at 1324.

313. In addition, the United States government and its contractors have a right to use any patent without a license. A private firm cannot be held liable for patent infringement for any goods used or manufactured for the United States. Pursuant to 28 U.S.C. § 1498(a) (1999):

Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same, the owner's remedy shall be by action against the United States in the United States Court of Federal Claims for the recovery of his reasonable and entire compensation for such use and manufacture . . . For the purposes of this section, the use or manufacture of an invention described in and covered by a patent of the United States by a contractor, a subcontractor, or any person, firm, or corporation for the Government and with the authorization or consent of the Government, shall be construed as use or manufacture for the United States.

This amounts to a compulsory license of another's patent, and the patentee's remedy is limited to a reasonable royalty. *See, e.g.,* Crater Corp. v. Lucent Tech., Inc., 255 F.3d 1361 (Fed. Cir. 2001) (underwater coupling device); Gargoyles, Inc. v. United States, 113 F.3d 1572 (Fed. Cir. 1997) (military protective eyewear); Hughes Aircraft Co. v. United States, 86 F.3d 1566 (Fed. Cir. 1996) (spacecraft spin stabilizers); Carter-Wallace, Inc. v. United States, 496 F.2d 535 (Ct. Cl. 1974) (meprobamate tranquilizer).

ented inventions.³¹⁴ One such statute is the Clean Air Act, which permits compulsory licensing whenever the Attorney General finds (1) an otherwise unavailable patent is needed to accomplish the goals of the Clean Air Act, (2) no reasonable alternative methods exist that satisfy its goal, and (3) the unavailability of such license "may result in a substantial lessening of competition."³¹⁵ Similarly, the Atomic Energy Act contains provisions for compulsory licensing if doing so would be in the public interest.³¹⁶ The Atomic Energy Commission may, after giving the patent owner an opportunity for a hearing, declare any patent to be affected with the public interest if (1) the invention or discovery covered by the patent is of primary importance in the production or utilization of special nuclear material or atomic energy, and (2) the licensing of such invention or discovery under this section is of primary importance to effectuate the policies and purposes of the statute.³¹⁷

Under the Plant Protection Act,³¹⁸ the Secretary of Agriculture may grant a compulsory license for a patent-protected plant and may order payment of a reasonable royalty to the patentee, if the Secretary determines that the compulsory license is "necessary in order to ensure an adequate supply of fiber, food, or feed in this country and its owner is unwilling or unable to supply the public needs . . . at a price which is reasonably deemed fair."³¹⁹ As with the Clean Air and the Atomic Energy Acts, there must be (1) a showing of some strong public interest or need for the patented invention, (2) no other appropriate substitute available, and (3) no other way to license the patent.³²⁰ Thus, the narrow exceptions to the general rule that a patentee is free to refuse to use or license his or her patent, whether created judicially

314. In 1832, Congress actually enacted a statute that required a patentee to introduce the invention into public use within one year after the patent issued or the patent would become void. *See* 4 Stat. 577 (1832). This statute, however, applied only to resident aliens who intended to seek U.S. citizenship and who had been granted a U.S. patent. Several years later, the statute was repealed. *See id.*

315. 42 U.S.C. § 7608 (1994). If the Attorney General does find the patented invention satisfies these three conditions, the patent owner is required to license his or her invention "on reasonable terms and . . . conditions." *Id.* For an analysis of this provision, see Jeffrey C. Gerber & Peter W. Kitson, *Compulsory Licensing of Patents Under the Clean Air Act of 1970*, 54 J. PAT. OFF. SOC'Y 650 (1972); Warren F. Schwartz, *Mandatory Patent Licensing of Air Pollution Control Technology*, 57 VA. L. REV. 719 (1971).

316. 42 U.S.C. § 2183(b) (1999).

317. *Id.* § 2183(a) (1999). For an analysis of this provision, see Alfons Puishes, *Compulsory Licensing of Patents and Atomic Energy*, 42 J. PAT. OFF. SOC'Y 694 (1960); William W. Beckett & Richard M. Merriman, *Will the Patent Provisions of the Atomic Energy Act of 1954 Promote Progress or Stifle Invention?*, 37 J. PAT. OFF. SOC'Y 38 (1955).

318. 7 U.S.C. § 2404 (1994).

319. *Id.*

320. *See id.*

or legislatively, share the justification that it is in the public interest to require the use of a patented technology in limited circumstances.³²¹

Compulsory licensing is also permitted under the Bayh-Dole Act, which was enacted in order to encourage universities to patent and commercialize the products of federally-funded research, and “to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and protect the public against nonuse or unreasonable use of inventions.”³²² The Act allows the federal government to exercise “march-in rights” against universities that are recipients of federal grants and contracts to compel licensing of inventions developed with such federal assistance. To do this, the government must first determine that the university (or its exclusive licensee) “has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention,”³²³ if necessary “to alleviate public health or safety needs,”³²⁴ or meet requirements for public use mandated by federal regulation.³²⁵ If any of these are established, the federal government can require the patentee to license the invention to private sector firms.³²⁶

There is, in addition, a long-established use of compulsory patent licensing as part of merger reviews and federal antitrust remedies. The Antitrust Division of the Department of Justice, along with the Federal Trade Commission (“FTC”), regularly makes approval of mergers contingent on an agreement by the firms to license their patents to competitors and others in order to avoid market concentration. Similarly, the Antitrust Division and the FTC have persuaded the courts to impose compulsory licensing as part of a remedy order after finding that the defendant-patentee had violated the federal antitrust laws.³²⁷

321. Other compulsory licensing provisions are found in the Semiconductor Chip Protection Act, 17 U.S.C. §§ 901–14 (1994); the Tennessee Valley Authority Act, 16 U.S.C. § 831(r) (1999); the Plant Variety Protection Act *supra* note 318; the Helium Act, 50 U.S.C. § 167b (1999); the Coal Research & Development Act, 30 U.S.C. § 666 (1994); the Arms Control & Disarmament Act, 22 U.S.C. § 2572 (1999); the Solid Waste Disposal Act, 42 U.S.C. § 3253(c) (1994); and the Energy Research & Development Act, 42 U.S.C. § 5908(a) (1994).

322. 35 U.S.C. § 200 (1994).

323. § 203(1)(a).

324. § 203(1)(b).

325. § 203(1)(c).

326. The Act mandates administrative proceedings and exhaustion of remedies, and the National Institutes of Health (“NIH”) has never exercised march-in rights, perhaps because the process is too burdensome. See Barbara M. McGarey & Annette C. Levey, *Patents, Products, and Public Health: An Analysis of the CellPro March-In Petition*, 14 BERKELEY TECH. L.J. 1095 (1999); Rebecca S. Eisenberg, *Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research*, 82 VA. L. REV. 1663 (1996).

327. See, e.g., *United States v. Glaxo Group, Ltd.*, 410 U.S. 52 (1973); *United States v. Nat'l Lead Co.*, 332 U.S. 319 (1947). For a recent use of compulsory licens-

As these statutes and cases like *Activated Sludge* and *Vitamin Technologies* point out, there is precedent for resort to judicial or legislative intervention when patent rights part company with the public interest. Perhaps the most important reason for looking to the public interest when suppression occurs is the intellectual property clause of the United States Constitution, which states in relevant part: “The Congress shall have power . . . To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.”³²⁸ The purpose of the grant of the power to Congress to provide for patent rights is clear: the “exclusive right” encompassed by the patent must serve the public interest of promoting the progress of the “useful arts.”³²⁹ The means for achieving this purpose is the award of the exclusive right,³³⁰ which has evolved over time into a property right.³³¹ Although this right has been sometimes viewed as an incentive in the form of a reward for the inventor’s labors, the intellectual property clause in no way suggests that this was the intended purpose of Congress’ power.³³² Indeed, as with other monopolies, the drafters of the Constitution viewed patents as an evil to be suffered in order to advance the more important public interest.³³³

Moreover, the Constitution draws a distinction between intellectual property and other forms of property in that the exclusive right to an invention is granted “for limited times”³³⁴ so that after the expiration of this period, the invention is given over to the public domain without further compensation. By contrast, no other forms of “private property [may] be taken for public use, without just compensation.”³³⁵ This distinction reflects the framers’ realization that intellectual prop-

ing as part of an antitrust review, see Press Release, U.S. Dep’t of Justice, Ohio Steel Company Agrees to License Patents in Order to Resolve Justice Department’s Antitrust Concerns, (Aug. 26, 1999) available at http://usdoj.gov/atr/public/press_releases/1999/2646.htm.

328. U.S. CONST. art I, § 8, cl. 8 (emphasis added).

329. As the Supreme Court intoned in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), “‘promot[ing] the Progress of . . . useful Arts’ . . . is the *standard* expressed in the Constitution and it may not be ignored.” *Id.* at 6.

330. This is consistent with the early historical understanding in England of the patent as a grant of royal monopoly privileges that later came to be seen as a property right. See Mossoff, *supra* note 46, at 1259–85; de Carvalho, *supra* note 46, at 37–43.

331. See Fisher, *supra* note 44, and accompanying text. In fact, in an early copyright infringement case, the Supreme Court expressly dismissed an argument that the purpose of the clause was to create or to recognize a property right in the authors of original works. See *Wheaton v. Peters*, 33 U.S. (8 Pet.) 591, 654–68 (1834).

332. See *Special Equipment Co. v. Coe*, 324 U.S. 370, 382–83 (1945) (Douglas, J., dissenting).

333. See *supra* notes 1–2 and accompanying text; see also Edward C. Walterscheid, *Patents and the Jeffersonian Mythology*, 29 J. MARSHALL L. REV. 269 (1995).

334. U.S. CONST. art I, § 8, cl. 8.

335. U.S. CONST. amend. V.

erty is inherently different than real and personal property based on the ability of the property owner to exclude others from using the property.³³⁶ Physical possession of tangible property necessarily deprives all others from its use, whereas possession and use of intellectual property is nonrivalrous — all those who know an idea may possess and use it without diminishing its value.³³⁷ Ultimately, therefore, the “exclusive right” exists only because the framers believed it was in the public interest for it to exist.³³⁸

Resort to compulsory patent licensing in the name of the public interest is not only consistent with the Paris Convention and TRIPs Agreement, but also is well-established as a matter of judicial precedent and current statutory law. When patent suppression occurs, the public interest should be construed to encompass public health and safety situations, as well as those situations in which competition and innovation within the relevant market may be significantly impeded. Compulsory licensing under this proposal would be limited to those cases where a patentee with market power has acted to suppress a technology and deter innovation or competition by eliminating a rival or preventing a rival from bringing an alternative or complementary invention to market.³³⁹ What constitutes the public interest will vary from market to market, and may in fact vary over time as well. It will

336. *But see* F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697 (2000) (arguing that property rights motivated the creation of the U.S. patent system and remain at its core).

337. Thomas Jefferson more artfully made this point in this well-known quotation:

He who receives an idea from me, receives the instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. . . . Inventions then cannot, in nature, be a subject of property. Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and convenience of the society, without claim or complaint from anybody.

Letter to Isaac McPherson (Aug. 1813), *in* VI WRITINGS OF THOMAS JEFFERSON 180–81 (Washington ed.). For a more extensive comparison of the nature of intellectual and tangible property rights, see Andrew Beckerman-Rodau, *Are Ideas Within the Traditional Definition of Property?: A Jurisprudential Analysis*, 47 ARK. L. REV. 603 (1994).

338. A corollary is that owners of property rights must surrender some or all of their rights when necessary to preserve the public interest. This proposition is the justification for land use restrictions and eminent domain.

339. *Cf.* *United States v. General Cable Corp.*, 1948–49 Trad. Cas. (CCH) ¶62,300 (S.D.N.Y. 1948) (consent judgment enjoining fluid filled cable manufacturers from entering into an agreement to “suppress commercial development of exploitation of patents . . . relating to fluid filled cable or accessories,” requiring them to grant a non-exclusive license to any applicant at a reasonable royalty).

be the task of the courts and the administrative agencies to decide when the public interest is best ensured by compulsory licensing.³⁴⁰

VI. CONCLUSION

In his book, *It Usually Begins With Ayn Rand*,³⁴¹ the author, Jerome Tuccille,³⁴² writes of his encounter one day with a disciple of Andrew Joseph Galambos:

Around this time I met the Galambosian. "I am a Galambosian," he said. . . .

"What . . . is a Galambosian?"

"There are five legitimate functions of government," said the Galambosian.

"No kidding. What are they?"

"I am not at liberty to say. The theory was originated by Andy Galambos and it is his primary property. . . . If the rest of us were free to discuss his ideas," said the Galambosian, "there is no question in my mind that Galambosianism would spread throughout the world like wildfire."³⁴³

Galambos had developed a theory of "primary property rights." According to this theory, as soon as someone thought of a new idea, it belonged irrevocably to him or her, and remained forever as his or her primary property. Since Galambos believed that primary property is an absolute and eternal right and could not be given away, Tuccille explained that it was nearly impossible to find out anything about Galambosianism. This was because Galambos' disciples were not at

340. When a compulsory license is ordered, the court must also determine the royalty that the licensee must pay to the patent owner. The courts must approximate a royalty that reflects the future commercial value of the patent or allows the patentee to recover the costs of research and development, in addition to some fair but not excessive level of profit. Here, the courts can look to what has been done in setting royalty rates under other federal statutes that mandate compulsory licensing or in determining damages for infringement under section 284 of the Patent Act, providing that "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." 35 U.S.C. § 284 (1999). An alternative, market-based mechanism for setting compulsory licensing royalties would be through the use of an auction to determine the valuation of the patent. Those interested in licensing the patent would bid for the right to do so, and the court could set the royalty rate based on the result of the auction.

341. JEROME TUCCILLE, *IT USUALLY BEGINS WITH AYN RAND* (1971).

342. Jerome Tuccille was one of the early leaders of the modern libertarian movement and was a friend of author and objectivist philosopher Ayn Rand.

343. TUCCILLE, *supra* note 341, at 69-71.

liberty to disseminate his philosophy without paying a royalty to Galambos and because Galambos would never waive the royalty. Thus, he had to convert his very few disciples personally, one at a time.³⁴⁴

Tuccille's encounter with the Galambosian is not meant to be a metaphor for refusals to use and license patents, but it reminds us that the marriage of patent protection and property rights theory has greatly hamstrung the courts when patent suppression is uncovered. Suppression has not been the norm, but it continues to occur. When it does occur and has been documented, the patents that are most likely to be suppressed are those that are directly competitive with the patentee's existing technology because they could substitute for it. Thus, patent accumulation and suppression becomes a means to prevent a potential competitor from developing a close substitute and entering its market. In addition, those patents that involve markets relevant to the patentee's and that might reduce the demand for the patentee's technology may be suppressed, as well as those that are complementary to another's technology but are owned as blocking patents. In each instance, the property rights conferred by the patent facilitate the firm's conduct.

However, when it comes to addressing technology suppression, the patent is perhaps better understood as a type of social contract between the patentee and society. The patentee sells the results of his or her labors in the form of disclosure accompanied by a promise to commercialize or allow others to exploit the invention; in exchange, society conveys a limited monopoly to the patentee and receives the benefits of competitive commercialization. These benefits to society, however, are negated when firms hoard patents, employing them in some instances as barriers to market entry. Thus, the exclusive rights conferred by the patent are of value only when the patent is actually used. Otherwise, efficiency is maximized only when the patent owner licenses or assigns the patent to those who would use or improve the technology.

Along these lines, this Article has proposed several means of deterring both patent nonuse in general and technology suppression in particular. First, all patentees should file, as a matter of public record, an annual statement with the USPTO that simply indicates whether their patents are being used and, if not, the reasons that the patents are not being used or licensed to others for use. Second, in antitrust enforcement actions, evidence of patent suppression should be weighed more heavily when it is part of other predatory conduct, particularly where a monopolist has pursued a plan of acquiring and then shelving

344. *See id.*

competing technology within its field,³⁴⁵ or where there is concerted anticompetitive activity that also involves patents. Finally, compulsory patent licensing should be applied when it is proved that the patentee has market power in the relevant market, and that the patent is either essential to effective competition or innovation within that market or that it is in the public interest that the patent be used or licensed.

This proposal is not a call for adopting a wholesale compulsory licensing scheme.³⁴⁶ Rather, it is an attempt to define the public interest in terms of technology innovation, diffusion, and competition. More importantly, it is intended to reify the Constitutional underpinnings of the patent system by more fairly balancing the patentee's exclusive right with the public interest when patent suppression has been identified. If nothing else, the rise of advanced technologies and the expansion of the scope of patentable subject matter in recent years underscore the need to redefine the role of the public interest in cases of nonuse leading to suppression.

345. "[T]he patentee who has not engaged in other "misuse" of its patent by such devices as improper infringement suits or unlawful tying has an absolute right to refuse to license to others. If this rule should ever be less absolute, it would be when the patents at issue have been acquired, and even more when they are both acquired and unused." PHILIP AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶704.1 (Supp. 2001).

346. Indeed, an across-the-board mandatory use or licensing requirement might very well function as a serious deterrent to innovation by all firms.