

PATENT MISUSE THROUGH THE CAPTURE OF INDUSTRY STANDARDS

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ABSTRACT

The existence of a patent on a particular technology conveys the statutory right to exclude, but in no way guarantees economic power in the marketplace. When a patented technology is adopted as an industry standard, however, that equation can change radically. Because of competitive necessity to practice the patented standard, particularly in industries characterized by network effects, the power potentially conveyed by the patent is greatly amplified. Industry standards are subject to “capture” when firms that participate in formulating a standard have also obtained (or are seeking) patent or other proprietary rights in some aspect of the technical subject matter of the standard, without disclosing the existence of those rights to the standard-setting organization. Conflicts arise when a license under these patents is essential to practicing a standard and the patent owner refuses to license certain competitors, or grants licenses only at terms perceived by users as commercially unreasonable. Absent a mechanism to compel licensing, a hold-up problem ensues.

This Article contends that patents are not fundamentally incompatible with industry standards, but that the existence of patents on standards must be transparent and the licensing of such patents subject to appropriate controls so as to ensure widespread industry access. In order to make fully informed choices about technology under consideration for adoption as an industry standard, standards-setting organizations must be made aware of any relevant patent rights or pending patent applications owned by standards-setting participants. In cases of “abusive” standards capture, defined as the intentional or willful nondisclosure of patent rights by a standards-setting participant who thereafter refuses to license all users at reasonable

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and nondiscriminatory terms, courts should refuse to enforce such patents altogether under a theory of patent misuse.

I. INTRODUCTION

Air pollution caused by automobile tailpipe emissions plagues virtually every country in the world;¹ in the United States, no state suffers more than California.² In December 1990, the Union Oil Company of California (“Unocal”) filed a United States patent application directed to “clean fuels”—automotive gasoline compositions formulated to reduce tailpipe emissions.³ While Unocal’s patent application was pending in secrecy in the Patent and Trademark Office (“USPTO”),⁴ the California Air Resources Board (“CARB”) in November 1991 issued new regulations for clean-burning gasoline;⁵ the regulations would go into effect in 1996⁶ and

1. Cf. Keith Bradsher and Andrew C. Revkin, *A Pre-Emptive Strike on Global Warming*, N.Y. TIMES, May 15, 2001, at C12 (reporting that the burning of one gallon of gasoline produces twenty pounds of global warming gases, and that global warming emissions from transportation—generated primarily through the burning of gasoline and diesel fuel in automobiles and trucks—increased by 3.4% in 1999).

2. See Bruce Newman, *Clearing the Air in the Land of Smog*, N.Y. TIMES, May 19, 1999, at G20 (reporting that although environmental initiatives have reduced the state’s air pollution to one-third the levels in the 1950s, California still has the dirtiest air in the United States). See also U.S. Patent No. 5,288,393 (issued Feb. 22, 1994), at col. 1, ll. 9-16, asserting that:

[o]ne of the major environmental problems confronting the United States and other countries is atmospheric pollution (i.e., “smog”) caused by the emission of gaseous pollutants in the exhaust gases from automobiles. This problem is especially acute in major metropolitan areas, such as Los Angeles, Calif., where the atmospheric conditions and the great number of automobiles account for aggravated air pollution.

3. Brief of Amicus Curiae United States at 2, *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 208 F.3d 989 (Fed. Cir. 2000), *cert. denied*, 121 S. Ct. 1167 (2001) (No. 00-249). The Unocal application was filed with 82 claims on December 13, 1990, asserting an invention date of March 1990. *Id. at 2-3*. Each of the claims recited a gasoline composition characterized by a combination of four to six properties: Reid Vapor Pressure (RVP), T10, T50, T90, Olefins, Paraffins, Aromatics, and Octane. *Union Oil. Co. of Cal.*, 208 F.3d at 992.

4. Under current law, most pending U.S. patent applications will be published eighteen months after their earliest effective filing date. 35 U.S.C. § 122(b)(1) (Supp. 2001). The law in effect at the time of Unocal’s application required that all pending patent applications be maintained in secrecy until issuance. 35 U.S.C. § 122 (1990).

5. News Release, California Environmental Protection Agency, California Air Resources Board Orders World’s Cleanest Burning Gasoline (Nov. 22, 1991), available at <http://www.arb.ca.gov/newsrel/nr112291.htm>; CAL. CODE REGS. tit. 13, §§ 2260-76 (2002).

6. CAL. CODE REGS. tit. 13, §§ 2261 (2002).

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be mandatory for all California gasoline producers.⁷ The CARB had developed these regulations through consultation and technology-sharing with numerous interested refiners, including Unocal.⁸ Unocal's application issued as U.S. Patent No. 5,288,393 in February 1994.⁹ Notably, its claims "read on" the CARB standards, such that any unlicensed refiner selling gasoline in compliance with the state-mandated standards would literally infringe Unocal's '393 patent.

When Unocal later announced that it would initiate a licensing program seeking royalties from its competitors for the practice of its '393 patent, Atlantic Richfield, Chevron, Exxon, and a number of other major oil refiners ("the refiners") sued for declaratory judgment.¹⁰ The refiners attacked the patent's validity on the ground that Unocal's 1990 application did not sufficiently describe the gasoline compositions on which the patent was issued in 1994.¹¹ In other words, the refiners contended that the USPTO should not have granted Unocal a patent on gasoline formulation inventions that it had not possessed in 1990 when it filed its application. Unocal filed a counterclaim alleging willful infringement of the '393 patent by the refiners.¹²

The refiners' challenge failed. After a forty-nine day trial, a jury sustained the patent's validity.¹³ A split panel of the United States Court of

7. *Id.*

8. See Alexei Barrionuevo, *Exhausting Feud: A Patent Fracas Pits Unocal Corp. Against Big U.S. Oil Producers*, WALL ST. J., Aug. 17, 2000, at A1 (citing statement of Jananne Sharpless, then-Chair of the CARB, that Unocal argued for various concessions, as other oil companies did, in more than two dozen meetings with California regulators to develop the CARB clean fuel regulations, but did not disclose existence of its patent application). See generally Brief of Amicus Curiae United States at 1-3, *Union Oil. Co. of Cal.* (No. 00-249).

9. U.S. Patent No. 5,288,393 (issued Feb. 22, 1994). As issued the '393 patent contained 155 claims, but Unocal later disclaimed all but forty-one of these claims. *Union Oil. Co. of Cal.*, 208 F.3d at 991.

10. See *Union Oil Co. of Cal. v. Chevron U.S.A., Inc.*, 34 F. Supp. 2d 1222, 1224 (C.D. Cal. 1998) (describing procedural history).

11. More specifically, the declaratory plaintiff refiners charged that the '393 patent was invalid for failure to comply with the "written description of the invention" requirement of 35 U.S.C. § 112, ¶ 1. This requirement ensures that the patentee "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention." *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (emphasis omitted).

12. *Union Oil. Co. of Cal.*, 208 F.3d at 994.

13. *Id.* The jury returned a special verdict form indicating that each of the 41 asserted claims had not been proven invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, ¶1. *Id.* The 41 asserted claims were not originally-

Appeals for the Federal Circuit affirmed.¹⁴ The refiners petitioned the United States Supreme Court for *certiorari*, arguing primarily that Unocal had improperly participated in the CARB standards-setting process by never revealing to the CARB, the Environmental Protection Agency (“EPA”), or anyone else, that it had a pending patent application on the product required by these standards.¹⁵ The refiners contended that after the CARB issued its regulations, Unocal cancelled its original patent claims and intentionally substituted amended claims to “resemble” the CARB regulations.¹⁶ By manipulating United States patent law’s written description requirement,¹⁷ the refiners urged, Unocal exploited the regulatory and patent processes, thereby placing the refiners in “a regulatory/patent law vise.”¹⁸

Public criticism of Unocal’s tactics was severe, particularly when it became known that Unocal was seeking royalties under the ’393 patent of approximately 5.75 cents per gallon of gasoline sold, 90% of which were likely to be passed on to consumers through increased gas prices.¹⁹ California’s Attorney General Bill Lockyer joined the fray, accusing Unocal of seeking to “hijack and distort” the state regulatory process through its ac-

filed claims, but they were added by amendment during prosecution of the ’393 patent. *Id.* at 1002.

14. *Id.* at 1002.

15. Petition for Writ of Certiorari at 13-14, *Union Oil Co. of Cal.* (No. 00-249).

16. *Id.* at 14.

17. A U.S. patent must provide:

a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same

35 U.S.C. § 112, ¶ 1 (1994). This statutory provision is thought to encompass two separate requirements: the “written description” requirement and the “enablement” requirement. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1561-62 (Fed. Cir. 1991). Compliance with the written description requirement is discussed in further detail at Part III.A *infra*.

18. Petition for Writ of Certiorari at 2, *Union Oil Co. of Cal.* (No. 00-249).

19. See *id.* at 9. Based on that royalty, applied to the five-month time period in 1996 at issue, the trial court awarded Unocal over sixty-nine million dollars, plus interest, attorneys’ fees, and costs. See Brief of Amici Curiae States of Alabama, Arizona, Arkansas, California, Colorado, Delaware, Georgia, Illinois, Indiana, Kansas, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin and the District of Columbia In Support of the Petition for Writ of Certiorari at 2, *Union Oil Co. of Cal.* (No. 00-249) [hereinafter Brief of Amici Curiae States]; Barriónuevo, *supra* note 8, at A1.

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quisition and enforcement of the '393 patent.²⁰ Lockyer and thirty-three other state attorneys general filed an *amicus curiae* brief in the Supreme Court, supporting the refiners' *certiorari* petition.²¹ The *amici* charged that Unocal "work[ed] hand-in-glove with the other participants in a state administrative process to develop cleaner-burning gasoline, while at the same time seeking to garner a monopoly from the fruits of that joint endeavor, all the while hiding its true objective."²²

Despite the outcry over *Unocal*, the Supreme Court denied *certiorari*.²³ As this Article goes to print, the dispute is not yet resolved; the Federal Trade Commission is considering a request by Exxon Corporation to investigate Unocal's patenting practices²⁴ and a request for reexamination of Unocal's '393 patent is pending in the USPTO.²⁵ In January 2002, the Federal Circuit rejected an attempt by another oil refiner to initiate an interference proceeding under 35 U.S.C. § 291 between its patent and the '393 patent.²⁶

The Unocal gasoline patent story is but one of a growing number of examples that illustrate the "capture"²⁷ of an industry standard by a firm holding intellectual property rights in the technical subject matter of that

20. See Julie Tamaki, *Unocal Patent on Clean Fuel Stirs Outrage*, L.A. TIMES, Oct. 9, 2000, at A3; Press Release, Attorney General of California, Attorney General Bill Lockyer Files "Friend of the Court" Brief over Unocal Gasoline Patent (Sept. 14, 2000), available at <http://caag.state.ca.us/newsalerts/2000/00-122.htm> (reporting that *amicus curiae* brief was filed on September 14, 2000, in the U.S. Supreme Court on behalf of California and thirty-three other states, arguing that Unocal "should not be able to 'hijack and distort' the state regulatory process by claiming a patent on gasoline formulas developed in cooperation with the government to meet clean air standards").

21. See Brief of Amici Curiae States, *supra* note 19.

22. *Id.* at 12.

23. Atl. Richfield Co. v. Union Oil Co. of Cal., 531 U.S. 1183 (2001).

24. See *Exxon Mobil Seeks Probe of Unocal Patents*, L.A. TIMES, May 8, 2001, at C4 (reporting that "Unocal has received \$92 million for infringements over a five-month period in California from six major oil companies, including Exxon Mobil").

25. Reexamination U.S. Serial No. 90/005,942 (filed Mar. 1, 2001); see U.S. PAT. AND TRADEMARK OFF., OFFICIAL GAZETTE (Mar. 27, 2001), available at <http://www.uspto.gov/web/offices/com/sol/og/2001/week13/patrequ.htm> ("Requests for Reexamination Filed" listing, including '393 patent).

26. See Talbert Fuel Sys. Patents Co. v. Unocal Corp., 275 F.3d 1371, 1377-78 (Fed. Cir. 2002) (affirming district court's dismissal of Talbert's requested interference proceeding under 35 U.S.C. § 291 on ground that claim 1 of Talbert's U.S. Patent No. 5,015,356 did not claim same subject matter as claim 81 of Unocal's '393 patent).

27. Commentators have previously used the term "capture" to characterize anticompetitive behavior by certain intellectual property owners involved in standards-setting. See, e.g., Mark A. Lemley, *Antitrust and the Internet Standardization Problem*, 28 CONN. L. REV. 1041, 1086 (1996).

standard, i.e., the assertion of intellectual property rights by a firm that both participated in the standard-setting activity and also obtained proprietary rights in some aspect of the technical subject matter of the standard. Other commentators have termed this a problem of standards “abuse,”²⁸ “gaming,”²⁹ or “hidden intellectual property rights.”³⁰

Although previous standards disputes have implicated copyright law,³¹ this Article focuses on standards capture through patent procurement. Conflicts arise when a patent license is essential³² to practicing a standard and the patent owner demands royalties that standards users view as commercially unreasonable, or refuses to license on any terms to certain users.³³ Absent a mechanism to compel licensing, a “hold-up” problem ensues.³⁴

28. See *In re Dell Computer Corp.*, 121 F.T.C. 616, 1996 FTC LEXIS 291, *23 (1996) (Comm'r. Azcuenaga, dissenting) (describing the case as concerning “alleged abuse of the standards-setting process by a patent holder”).

29. Richard Karpinski, *Keep Patents Out of Standards, but Reward Innovation*, INTERNETWEEK, Nov. 16, 2001, at <http://www.internetweek.com/watercooler/coolerg111601.htm> (asserting that “[s]avvy vendors, from IBM to Microsoft to Sun, have been ‘gaming’ the standards process for years now”).

30. Carl Shapiro, *Setting Compatibility Standards: Cooperation or Collusion* (Rev. June 8, 2000), <http://haas.berkeley.edu/~shapiro/standards.pdf>, at 17.

31. See, e.g., Practice Mgmt. Info. Corp. v. Am. Med. Ass'n, 121 F.3d 516, 520-21 (9th Cir. 1997) (finding copyright misuse where the defendant American Medical Association (AMA) granted a copyright license to a U.S. federal government agency permitting use of AMA's copyrighted medical procedure code by physicians filling out Medicaid and Medicare claim forms, on the condition that the agency would not use any other system of medical nomenclature); Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807, 821-22 (1st Cir. 1995) (Boudin, J., concurring) (noting that Lotus 1-2-3 has become a de facto standard for electronic spreadsheet programs, and suggesting that Borland's unlicensed use of Lotus's menu command structure may be privileged).

32. An “essential” patent is one that must be practiced in order to comply with the industry standard. See Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, at 19 (Soc. Sci. Research Network, Working Paper, Mar. 2001), at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=273550 (noting that “once a standard is picked, any patents (or copyrights) necessary to comply with that standard become truly essential”).

33. See Jaap H. Spoor, *Standardization and Exclusivity in Intellectual Property*, in INFORMATION LAW TOWARDS THE 21ST CENTURY 374 (Willem F. Korthals Altes et al. eds., 1992) (contending that patents on standards technology are not necessarily problematic, unless “the patent owner refuses to grant any licenses, or grants partial licenses only, in order to reserve a monopoly for himself”).

34. See Shapiro, *supra* note 32, at 19-20 (observing that when an industry standard “becomes popular, each such patent [necessary to comply with the standard] can confer significant market power on its owner, and the standard itself is subject to ‘hold-up’ if these patent holders are not somehow obligated to license their patents on ‘reasonable’ terms”).

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As patent protection eclipses copyright and other forms of intellectual property as the protection mechanism of choice for many technologies,³⁵ these disputes at the intersection of patents and industry standards will arise with increasing frequency.³⁶ For example, the venerable World Wide Web Consortium (“W3C”) cites an increasing incidence of patent conflicts in the web development sphere as driving that group’s controversial August 2001 proposal allowing W3C standards to be based on patents licensed to standards users at “reasonable and nondiscriminatory” (“RAND”) terms, rather than on the “royalty-free” (“RF”) basis previously required by W3C.³⁷ As recently observed by former Chairman Robert Pi-

35. For example, patenting of software-implemented business methods has virtually exploded in the United States in the wake of *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999). See Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 590-91 (1999) (arguing that sharp increase in patent applications stemming from this newly patentable subject matter has pushed the patent system into crisis). See also Anne H. Chasser, *Developments at the United States Patent and Trademark Office*, 19 TEMP. ENVTL. L. & TECH. J. 27, 31 (2000) (stating that the US Patent and Trademark Office has “tripled the number of examiners that examine [patent applications directed to] business methods” since *State Street* was decided).

36. For example, Carl Shapiro and Hal Varian describe the standards-setting process for the 28.8K modem standard as one in which “[m]ultiple patent holders jockeyed to get their patents built into the standard to ensure royalty income and to gain time-to-market advantage.” CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES 239 (1999). See also Timothy Baumann, *As Standards Proliferate, So Too a Rise in Defendants Asserting ‘Standards Abuse’*, 2 PAT. STRATEGY & MGMT. 1 (June 2001) (asserting that “[a]s standards have proliferated, so have patents covering all or portions of standards,” and that as a result, “defendants in infringement suits have increasingly asserted defenses based on the ‘standards abuse’ of patent holders”).

37. See *W3C Patent Policy Framework* (Aug. 16, 2001), at <http://www.w3.org/TR/2001/WD-patent-policy-20010816/>. Section 1 of the W3C Patent Policy Framework states that:

[a]s Web technology has become more commercially critical and the impact of software and business process patents are felt more strongly in the Web development arena, W3C believes it is necessary to adopt a more comprehensive policy and process for addressing the relationship between the open technical Recommendations developed by W3C and patent rights held by both W3C Members and others.

Id.; see also *W3C Response to Public Comments on the W3C Patent Policy Framework Working Draft* (Oct. 2, 2001), at <http://www.w3.org/2001/10/patent-response> (citing conflict over patent rights raised by W3C specification for the Platform for Privacy Preferences Project (“P3P”) [see *infra* note 141], as well as “several similar situations in which fear, uncertainty, and doubt surrounding patents confused or derailed W3C work,” as basis for W3C’s position “that it would be irresponsible to act as if software patents didn’t exist”).

tofsky of the Federal Trade Commission: “Standard setting, often under the auspices of a trade association, can facilitate innovation. On the other hand, private standard setting, precisely because it is private, is subject to abuse.”³⁸

Part II surveys the rise of industry standards-setting. Part III describes how instability in several patent law doctrines facilitates standards capture through patenting. Contrary to the position taken by adherents of the “open standards” movement, Part IV contends that the assertion of patent rights over the subject matter of industry standards is not inherently improper. This Article argues, however, that patent owners should have a mandatory obligation to disclose the existence of any patents or pending patent applications that are material to the standard during their participation in the standards-setting process. Part V details this obligation, which parallels that borne by all U.S. patent applicants to disclose known information material to patentability to the USPTO.

If an industry standards-setting group ultimately adopts a standard that requires the practice of a patent that was *not* disclosed, a patent owner who participated in setting that standard but failed to disclose the patent’s existence should be subject to compulsory licensing, i.e., the patentee should be compelled to license any user of the standard at commercially reasonable terms and may not refuse to license. What is “reasonable” should be determined by a competent authority or industry experts, not left to the patent owner to determine *ex post*. In egregious cases, where the non-disclosure of a relevant patent was willful or intentional, courts should refuse to enforce the patent altogether under the patent misuse doctrine, as described in Part V.

II. THE RISE OF INDUSTRY STANDARDS-SETTING

To provide a context in which to address several specific intersections between patent law doctrine and industry standards, this Part reviews the growth of industry standards, the various types of standards now in place, and the intellectual property policies that have been adopted by many standards-setting organizations.

The August 2001 proposal of the W3C for RAND licensing met intense public criticism. See *Public Issues for Patent Policy Framework of 20010816* (archiving and summarizing public comments), at <http://www.w3.org/2001/11/PPF-Public-Issues>. In late February 2002, the W3C retracted the RAND proposal and substituted in its place a RF proposal. See <http://www.w3.org/TR/2002/WD-patent-policy-20020226/> (Feb. 26, 2002).

38. Robert Pitofsky, *Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy*, 16 BERKELEY TECH. L.J. 535, 550 (2001).

A. The Industries Impacted by Standards-Setting

Industry standards are pervasive. For example, one or more hardware or software standards govern virtually every aspect of using a computer or connecting to the Internet.³⁹ Standards development is particularly critical for the digital economy.⁴⁰ The United States Government predicts that standards are needed in at least the following areas: electronic payments; security (confidentiality, authentication, data integrity, access control, nonrepudiation); security services infrastructure (e.g., public key certificate authorities); electronic copyright management systems; video and data-conferencing; high-speed network technologies (e.g., Asynchronous Transfer Mode, Synchronous Digital Hierarchy); and digital object and data interchange.⁴¹

Beyond computing, standards exist in all industries, including “safety and health, telecommunications, information processing, petroleum, [and] medical devices.”⁴² The standards mandated by the State of California’s Air Resources Board in *Unocal* cover gasoline formulations. Even biotechnology is undergoing standards development.⁴³ Arguably, the human genome has become a de facto standard. Myriad firms need access to the genome’s structure and sequence⁴⁴ in order to develop new drugs, therapies, and diagnostic tools based on that information. Conflicts no doubt

39. Larry Seltzer, *The Standards Industry: Corporate Consortia Are Supplanting Traditional Rule-Making Bodies*, INTERNET WORLD, Apr. 15, 2001, at 50, available at <http://www.internetworld.com/magazine.php?inc=041501/04.15.01internettech1.html>. A recent “essay”-type advertisement for Microsoft asserts that “almost everything on the Internet, from the protocols that move data around the network to the software behind the World Wide Web, is built on open, consensus-based standards.” Microsoft Corporation, *Open Minded*, N.Y. TIMES, Apr. 11, 2001, at A12.

40. See, e.g., The White House, *A Framework for Global Economic Commerce*, N.Y. TIMES, Apr. 11, 2001, at A12, available at <http://www.ecommerce.gov/framework.htm> [hereinafter *Framework*] (asserting that “[s]tandards are critical to the long term commercial success of the Internet as they can allow products and services from different vendors to work together”).

41. *Id.*

42. American National Standards Institute, *Guidelines for Implementation of the ANSI Patent Policy: An Aid to More Efficient and Effective Standards Development In Fields That May Involve Patented Technology*, at <http://web.ansi.org/public/library/guides/ppguide.html> (last visited Mar. 1, 2002).

43. For example, “[b]ioinformatics.org is a nonprofit, academe-based organization committed to opening access to bioinformatics research projects, providing Open Source software for bioinformatics by hosting its development, and keeping biological information freely available.” Bioinformatics.org, *bioinformatics.org: The Open Lab*, at <http://bioinformatics.org/about> (last visited Mar. 12, 2002).

44. See J.C. Venter, *The Sequence of the Human Genome*, 291 SCIENCE 1304 (2001), available at <http://publication.celera.com>.

will arise as researchers seek licenses under the relevant genome patents.⁴⁵ Standards convergence is also likely for the software platforms used to sequence, manipulate, and view genetic data.⁴⁶

Three primary factors are driving the rise of standards-setting: product interoperability,⁴⁷ public health and safety,⁴⁸ and global competitiveness.⁴⁹ Most compelling is product interoperability.⁵⁰ As increasing numbers of consumers acquire notebook computers, personal digital assistants, cellular telephones, pagers, and other productivity and communication tools, the need for these devices to communicate with one another—as well as consumer desire for new application programs that will operate on all of

45. For further discussion of the problem of patents on research tools, see generally Janice M. Mueller, *No “Dilettante Affair”: Rethinking the Experimental Use Exception to Patent Infringement for Biomedical Research Tools*, 76 WASH. L. REV. 1 (2001).

46. Professor Arti Rai suggests that network externality issues may arise where a specific platform for viewing and manipulating computerized genetic and protein sequences becomes an industry de facto standard. Arti K. Rai, *Fostering Cumulative Innovation in the Biopharmaceutical Industry: The Role of Patents and Antitrust*, 16 BERKELEY TECH. L.J. 813, 821 n.33 (2001). Bioinformatics firms that obtained proprietary rights (such as copyright) in the software could obtain market power as a result of network externalities. *Id.*

47. See Keith Lutsch et al., Compaq Computer Corp., *Standards Activities in the Computer Industry*, in 1998 INTELLECTUAL PROPERTY LAW INSTITUTE, SAN ANTONIO, TEX. (Mar. 20-21, 1998), at N-2 (noting that the “essence of a technology standard is the definition of a core product and a complimentary product, for example, a compact disc player and a compact disc. The definition allows any number of manufacturers to produce cross-compatible core and complementary products”).

48. A terrible fire that in 1904 destroyed over 1,500 buildings in Baltimore, Maryland aptly illustrates that public safety concerns often drive standardization. Although fire departments from other cities were called in to assist, they were powerless to fight the flames because the fire hose connectors of Baltimore’s hydrants were incompatible with those of the other cities. Malcolm W. Browne, *Refining the Art of Measurement*, N.Y. TIMES, Mar. 20, 2001, at D1-D6.

49. For example, the Federal Trade Commission (FTC) has noted “the important role of standard-setting in the technological innovation that will drive much of this nation’s competitive vigor in the 21st Century.” *In re Dell Computer Corp.*, 121 F.T.C. 616, 1996 FTC LEXIS 291, *20 (1996). However, disparities in standards and conformity assessment practices between the United States and its trading partners may cause technical barriers to international trade. *U.S. Department of Commerce Standards Experts*, at <http://ts.nist.gov/ts/htdocs/210/216/sitdescr.htm> (last visited Mar. 31, 2001). “Standards also can be employed as de facto non-tariff trade barriers, to ‘lock out’ nonindigenous businesses from a particular national market.” *Framework*, *supra* note 40, § 9 (“Technical Standards”).

50. See Lemley, *supra* note 27, at 1047 (discussing need for “vertical compatibility” in a variety of industries). A common example is the need for compatibility between electric power plugs on appliances and the electrical outlets in the walls of homes and businesses. *See id.* (noting that a plug is “useless” unless it can connect to a wall outlet).

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these devices—is self-evident. Anyone who has experienced the frustrations of converting documents created in one word processing software program to another, switching between the leading computerized legal research providers to find desired content, or using a computer keyboard manufactured in a foreign country will immediately grasp the practical importance of standardization.

B. De Facto vs. De Jure Standards

Analysis of technology standards should distinguish between de jure standards and de facto standards.⁵¹ De facto standards are not promulgated by a particular body, but arise spontaneously due to marketplace success. Classic examples of de facto standards include the QWERTY typewriter keyboard layout⁵² and the Microsoft Windows operating system for personal computers.

De facto standards commonly exist in markets characterized by network externalities (or network effects).⁵³ In such markets the value that consumers place on a good increases as more and more consumers use that good.⁵⁴ A fax machine is a classic example of a positive network externality—as more people own fax machines, the value of any one person’s fax machine to that person increases.⁵⁵ As applied to standards, network externality theory predicts that the more widely a given technology standard is adopted, the more valuable it becomes. Network effects markets will be attractive targets for firms who can position their own proprietary technology as the technical standard in that market.⁵⁶

51. Seltzer, *supra* note 39, at 50-51.

52. Marketplace success does not always equate with technological superiority. The QWERTY typewriter keyboard layout was developed in the 1870s by the creators of the Type Writer brand as a means to slow down typists and thereby prevent certain frequently-used typewriter keys from excessive jamming. SHAPIRO & VARIAN, *supra* note 36, at 185. Although the competing Dvorak layout (patented in 1932) was considered technologically superior, the QWERTY format won out because the “collective switching costs” of migration to Dvorak for users already comfortable with QWERTY was simply too high. *Id.*

53. “Externalities arise when one market participant affects others without compensation being paid.” *Id.* at 183.

54. Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 481 (1998).

55. SHAPIRO & VARIAN, *supra* note 36, at 183. Examples of negative network externalities include pollution: one person’s sewage ruins the drinking or swimming water of many other individuals. *Id.*

56. See Pitofsky, *supra* note 38, at 538-39 (noting that “products and services based on intellectual property frequently exhibit ‘network effects,’” and asserting that “[t]he exclusionary rights granted by intellectual property protection, coupled with trends to-

This Article focuses primarily on de jure standards, which are rules for implementing a technology that are set by some official body, be it a government, an industry working group, or an academic consortium.⁵⁷ For example, the well-known ASCII (American National Standard Code for Information Interchange) standard, used in software, is a de jure standard promulgated by the American National Standards Institute (“ANSI”).⁵⁸

De jure standards are further divisible into (1) mandatory de jure standards, such as the gasoline emissions standards set by a government agency in the *Unocal* case discussed *supra*, and (2) consensual de jure standards such as the World Wide Web language Hyper Text Markup Language (“HTML”),⁵⁹ which was developed by the World Wide Web Consortium (“W3C”).⁶⁰ Consensual de jure standards are consensual in the sense that no firm is legally bound to follow them. However, marketplace reality suggests that most firms will comply with a de jure standard rather than develop their own alternative technology.

C. Intellectual Property Policies

Many standards-setting bodies have implemented intellectual property policies outlining a spectrum of obligations for holders of patents and other intellectual property rights in the subject matter of the standard.⁶¹

ward standardization due to network effects, threaten to diminish market competition”); *see also* Lemley & McGowan, *supra* note 54, at 481.

57. See Lutsch et al., *supra* note 47, at N-1 (defining de jure standards as those “set by some organized group,” which may be either an “established industry organization” such as the American National Standards Institute (ANSI) or the Institute of Electrical and Electronic Engineers (IEEE), or an “ad hoc consortia” such as those that developed the Extended Industry Standard Architecture (EISA) for personal computers or the Universal Serial Bus (USB) standard).

58. Seltzer, *supra* note 39, at 50-51. ANSI is a private, nonprofit organization that “administers and coordinates the U.S. voluntary standardization and conformity assessment system.” American National Standards Institute, *About ANSI*, at <http://www.org/public/about.html> (last visited May 26, 2001).

59. Jocelyn Kaiser, *Internet Patents Choking the Web?*, 284 SCIENCE 1427 (1999).

60. The World Wide Web Consortium (W3C) is an international industry and academic consortium of over 350 members dedicated to “lead[ing] the Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability.” World Wide Web Consortium, *About the World Wide Web Consortium [W3C]*, at <http://www.w3.org/1999/10/28-P3P-IntermindPatentAnalysis-PressRelease.html> (last visited July 21, 2001), at 2-3. Membership in the W3C is by corporation and is not open to all, unlike other standards consortia such as the Internet Engineering Task Force (IETF). See Seltzer, *supra* note 39, at 52.

61. Professor Mark Lemley has conducted an exhaustive study of the intellectual property policies of twenty-nine different standards-setting organizations. See Mark A.

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The most burdensome policies, from a patent owner's perspective, require that the owner of any patent deemed essential to practicing the standard grant a royalty-free license to any user of the standard.⁶² Other standards-setting bodies require that patent owners grant licenses under terms that are "reasonable and nondiscriminatory."⁶³ Still other bodies do not oblige

Lemley, *Intellectual Property Rights and Standard Setting Organizations*, 90 CALIF. L. REV. __ (forthcoming 2002).

62. For example, the W3C Working Groups that develop standards "have traditionally operated with the tacit assumption that the Recommendations they produce could be implemented without payment of patent license fees." *W3C Backgrounder for W3C Patent Policy Framework* (Aug. 20, 2001), at <http://www.w3.org/2001/08/patentnews>. As of August 2001, the W3C "has not been aware of any non-free patent that is essential to the implementation of any existing W3C Recommendation." *Id.*

63. For example, the Internet Engineering Task Force (IETF) requires that owners of Intellectual Property Rights (IPRs) in adopted standards agree to license them at openly-specified, reasonable, nondiscriminatory terms. See Internet Engineering Task Force, *The Internet Standards Process ¶ 10.3.2(C)* (1996), at <http://www.ietf.org/rfc/rfc2026.txt>. IETF guidelines provide that:

[w]here the IESG knows of rights, or claimed rights under (A), the IETF Executive Director shall attempt to obtain from the claimant of such rights, a written assurance that upon approval by the IESG of the relevant Internet standards track specification(s), any party will be able to obtain the right to implement, use and distribute the technology or works when implementing, using or distributing technology based upon the specific specification(s) under openly specified, reasonable, nondiscriminatory terms.

Id.

For a list of statements by corporate IETF members on their respective IPRs, see Internet Engineering Task Force, *IETF Page of Intellectual Property Rights Notices*, at <http://www.ietf.org/ipr.html> (last visited Apr. 7, 2001). The IETF is "a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual." Internet Engineering Task Force, *Overview of the IETF*, available at <http://www.ietf.org/overview.html> (last visited Apr. 7, 2001). The IETF has been described as "the single most important Internet standards body." Lawrence Lessig, *The Limits in Open Code: Regulatory Standards and the Future of the Net*, 14 BERKELEY TECH. L.J. 759, 760 n.2 (1999).

Similarly, the patent policy of the American National Standards Institute (ANSI) provides that ANSI does not object in principle to proposed American National Standards that include the use of a patented item, if such use is technologically justified. However, the identified patent holder must supply ANSI with a written assurance that it will license applicants who desire to implement the standard either without compensation or "under reasonable terms and conditions that are demonstrably free of any unfair discrimination." American National Standards Institute, *Guidelines for Implementation of the ANSI Patent Policy*, at <http://web.ansi.org/public/library/guides/ ppguide.html> (last visited Mar. 29, 2001).

patent owners to license under any particular terms, requiring only that standards-setting participants disclose any patents or pending patent applications that are related to the subject matter of the standard.⁶⁴ Lastly, some standards-setting bodies do not appear to have any formal intellectual property policies whatsoever, as in the case of the CARB in *Unocal*.⁶⁵

III. PATENT LAW AND THE FACILITATION OF STANDARDS CAPTURE

A number of substantive patent law doctrines operate at the intersection of industry standards and proprietary rights. This Part demonstrates that instability in these doctrines contributes to the issuance of patents on the technology of industry standards, subject matter that many consider to be the product of communal development and, by definition, not subject to exclusive rights.

A. Shifting Interpretations of the “Written Description of the Invention” Requirement

The Unocal story illustrates the manner in which disparate interpretations of patent law’s written description requirement are prominently contributing to standards capture. The declaratory plaintiff refiners in *Unocal*⁶⁶ challenged the validity of Unocal’s ’393 patent under the statutory requirement that a U.S. patent must contain a “written description of the invention.”⁶⁷ The refiners specifically criticized Unocal’s conceded

The Joint Electronic Devices Engineering Council (JEDEC) requires that patents incorporated into its standards be licensed either royalty-free or under “reasonable terms and conditions that are demonstrably free of any unfair discrimination.” Electronic Industries Alliance, *JEDEC Manual of Organization and Procedure JM21-K*, at Annex F42, *at* <http://www.jedec.org/Home/manuals/jm21k.pdf> [hereinafter *JEDEC Manual*].

64. For example, JEDEC has a policy requiring all participants in standards-setting discussions to disclose any intellectual property they hold that might be involved in the standard at issue. *See JEDEC Manual*, *supra* note 63, at Annex F42, (providing that standards that require use of patented technology “may not be considered by a JEDEC committee unless all of the relevant technical information covered by the patent or pending patent is known”).

65. Cf. Tamaki, *supra* note 20, at A3 (reporting that Unocal officials “contend they have done nothing wrong. No law or agreement required them to disclose their patent application . . . ”); Barrionuevo, *supra* note 8, at A1 (reporting position of Unocal officials that “[n]o law required Unocal to reveal its patent ambitions”).

66. *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 208 F.3d 989 (Fed. Cir. 2000); *see* discussion *supra* Part I.

67. *Id.* at 994. See section 112 which requires that a patent include:
a written description of the invention, and of the manner and process of
making and using it, in such full, clear, concise, and exact terms as to

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amendment of its pending patent claims to “resemble” the CARB regulations.⁶⁸ Disagreement between Federal Circuit judges as to what is required for compliance with the written description requirement ultimately permitted Unocal to capture the CARB clean-burning gasoline regulation by obtaining patent coverage that mirrored the regulation and withstood the refiners’ attack.

Issues of compliance with the written description requirement frequently arise when, as in *Unocal*, new patent claims are added to a pending patent application,⁶⁹ or when existing claims are substantively amended.⁷⁰ United States patent law allows applicants to add and amend claims during the patent procurement process, so long as the originally filed application “supports” the new claim language, and the amendments introduce no “new matter” into the application.⁷¹

When patents issue with new or amended claims that are inadequately supported by the originally filed written description, the patent applicant is not entitled to those claims,⁷² and they may be held invalid in subsequent

enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same
35 U.S.C. § 112 (1994).

68. See Barriouuelo, *supra* note 8, at A1 (reporting that Unocal inventor Dr. Peter Jessup admitted in his 1997 federal court testimony that “some of the company’s patent claims ‘were narrowed’ to ‘resemble the regulations’”).

69. See *Union Oil. Co. of Cal.*, 208 F.3d at 1002 (Lourie, J., dissenting in part) (stating that “[n]one of [the claims at issue] were in the original application; all were added by amendment”); see generally *In re Smith*, 481 F.2d 910, 914 (C.C.P.A. 1973). The court in *In re Smith* explained that:

[s]atisfaction of the description requirement insures that subject matter presented in the form of a claim subsequent to the filing date of the application was sufficiently disclosed at the time of filing so that the *prima facie* date of invention [of that newly-claimed subject matter] can fairly be held to be the filing date of the application.

Id.

70. See, e.g., *In re Smythe*, 480 F.2d 1376, 1382-85 (C.C.P.A. 1973) (addressing whether the written description and original claims adequately supported limitation added by preliminary amendment).

71. See 35 U.S.C. § 132(a) (2001) (providing that claims may be amended and specifying that “[n]o amendment shall introduce new matter into the disclosure of the invention”). “New matter” is a patent law term of art. Professor Chisum explains that “[n]ew matter includes any alteration or addition to the matter originally disclosed. It does not include amendments that merely clarify or make definite matter originally disclosed.” 1 DONALD S. CHISUM, CHISUM ON PATENTS G1 (2001) (Glossary entry for “new matter”).

72. See, e.g., *In re Ruschig*, 379 F.2d 990 (C.C.P.A. 1967).

litigation.⁷³ Imposition of the written description requirement in this manner guards against “overreaching” by inventors.⁷⁴ The requirement operates as a timing mechanism to ensure fair play in the presentation of claims after the original filing date and to guard against manipulation of that process by the patent applicant. Absent written description scrutiny, a later-presented claim not truly entitled to the earlier filing date of the application would be improperly examined against a smaller universe of prior art than is legally available.⁷⁵ The written description requirement takes a snapshot view of the inventor’s contribution as of the filing date of the application, and asks whether that snapshot reasonably conveys to persons of ordinary skill that any subsequently claimed subject matter was truly and fairly part of that originally filed contribution.⁷⁶ If not, those claims may be rejected by the USPTO examiner, or if allowed, held invalid in subsequent litigation.

The Federal Circuit panel majority in *Unocal* concluded that Unocal’s ’393 patent complied with the written description requirement.⁷⁷ In the view of the majority, persons of ordinary skill in the art, having read the originally filed 1990 application, would have understood from that disclosure how to make the later-claimed gasoline formulations.⁷⁸ The majority upheld the validity of the disputed claims despite the fact that the supporting disclosures, which corresponded to the various chemical property limitations of the asserted claims, were scattered throughout different portions of the patent application and not collected in any one discrete description of a claimed composition.⁷⁹

73. See Regents of the Univ. of Cal. v. Eli Lilly and Co., 119 F.3d 1559, 1575 (Fed. Cir. 1997) (invalidating patent claims for failure to comply with written description requirement of 35 U.S.C. § 112, ¶ 1).

74. See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991) (quoting *Rengo Co. v. Molins Mach. Co.*, 657 F.2d 535, 551 (3d Cir. 1981)) (identifying written description policy concern of “guard[ing] against the inventor’s overreaching by insisting that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation”).

75. Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 622 (1998).

76. *Id.* at 621.

77. *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 208 F.3d 989, 1001 (Fed. Cir. 2000).

78. *Id.* at 999 (concluding that “the record shows that the inventors possessed the claimed invention at the time of filing in the assessment of those of ordinary skill in the petroleum refining art”).

79. See *id.* at 998 (table showing support for claim limitations of claim 117); *id.* at 1002 (Lourie, J., dissenting in part) (noting “references to different parts of the specification for the various components” and concluding that “[t]he patent does not contain such complete descriptions of those compositions”).

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The highly deferential “substantial evidence” standard of review applied by the *Unocal* majority to the jury’s verdict of written description compliance, a question of fact,⁸⁰ no doubt influenced the result.⁸¹ More broadly, the *Unocal* majority’s affirmance may signal a retreat from the ultra-rigorous application of written description rules illustrated by other recent Federal Circuit pronouncements on the subject.⁸² The *Unocal* decision reflects a much more liberal perspective of the evidentiary requirements necessary to establish an inventor’s “possession” of a claimed invention than the Federal Circuit’s controversial 1997 decision in *Regents of the University of California v. Eli Lilly*,⁸³ authored by the dissenting judge on the *Unocal* panel.⁸⁴ The disputed claims in *Lilly*, directed to insulin-encoding cDNA for humans and other higher mammals, were invalidated based on the application’s failure to provide the precise nucleotide sequence corresponding to this cDNA.⁸⁵ The Federal Circuit held the claims invalid despite the fact that the patentee had provided the nucleotide sequence for insulin-encoding rat cDNA, as well as disclosed a method by which the human sequence could be derived therefrom. The accused infringer never challenged the patent’s validity on enablement grounds.⁸⁶

80. *In re Wilder*, 736 F.2d 1516, 1520 (Fed. Cir. 1984) (stating that “[t]he inquiry into whether the description requirement is met is a question of fact”).

81. See *Union Oil. Co. of Cal.*, 208 F.3d at 999 (noting that the *Unocal* jury “reached the same conclusion [of written description compliance] as a matter of fact—a proposition that this court cannot disturb on this record which supplies substantial evidence to support that finding”).

82. See Lawrence M. Sung, *On Treating Past as Prologue*, 2001 U. ILL. J.L. TECH. & POL’Y 75, 92-93 (2001) (contending that in *Unocal*, Federal Circuit shifts the focus of written description requirement away from patentee’s disclosure considered in isolation and towards the understanding of the disclosure gleaned by those of ordinary skill in the art).

83. See *Regents of the Univ. of Cal. v. Eli Lilly and Co.*, 119 F.3d 1559, 1569 (Fed. Cir. 1997) (holding that the written description requirement was not satisfied for university’s patent claims to a DNA absent an express disclosure in the specification of the nucleotide sequence for that DNA).

84. See *Union Oil. Co. of Cal.*, 208 F.3d at 1002 (Lourie, J., dissenting in part).

85. See *Lilly*, 119 F.3d at 1567 (contrasting lack of human cDNA sequence data with Regents’ provision of rat cDNA sequence data in Example 5 of ’525 patent).

86. See *Regents of the Univ. of Cal. v. Eli Lilly and Co.*, 39 U.S.P.Q.2d 1225 (S.D. Ind. 1995) (identifying written description requirement as the only issue of invalidity raised with respect to Regents’ ’525 patent); see also *Federal Circuit Rules it Takes More Than One cDNA Sequence to Claim a Genus*, III INTELL. PROP. LAWCAST (Dec. 29, 1997) (audio interview of Regents’ counsel Harold J. McElhinny) (stating that Lilly never raised nonenablement as a defense to Regents’ ’525 patent).

The *Unocal* majority's reliance on what persons of ordinary skill in the art would have understood from Unocal's 1990 disclosure, supplemented by those persons' pre-existing knowledge of that art, echoes the perspective taken in *Vas-Cath v. Mahurkar*.⁸⁷ In that 1991 decision the Federal Circuit signaled the appropriateness of importing the knowledge of the art worker into the written description analysis.⁸⁸ The *Vas-Cath* "skill in the art" analysis was largely abandoned in an intervening line of stringent inventor-centric written description decisions exemplified by *Lilly*,⁸⁹ *Lockwood v. American Airlines*,⁹⁰ and *Gentry Gallery v. Berkline*.⁹¹ These decisions focused exclusively on subject matter that the written description explicitly revealed was in the possession of the inventor, without consideration of how that subject matter would be understood when viewed through the lens of an ordinarily skilled reader of the written description.

While the *Unocal* decision returns the Federal Circuit to a more liberal *Vas-Cath*-like construction of written description compliance, it also facilitates standards capture by inviting amendments during prosecution that attempt to track a developing industry standard, like those made by *Unocal*. Such amendments are not improper as a matter of patent law, so long as adequate written description support was present in the application as filed.⁹² The majority in *Unocal* concluded that, based on a jury verdict, the

87. 935 F.2d 1555, 1561 (Fed. Cir. 1991).

88. *Id.* at 1565-67 (finding that declaration testimony of Dr. Stephen Ash, submitted by patentee as representative of understanding of person of ordinary skill in the art, evidenced inventor's possession of claimed invention as of application filing date).

89. 119 F.3d 1559.

90. 107 F.3d 1565 (Fed. Cir 1997). The Federal Circuit held that:

[a] description which renders obvious the invention for which an earlier filing date is sought is not sufficient . . . It is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to modifications that the inventor might have envisioned, but failed to disclose.

Id. at 1572.

91. 134 F.3d 1473 (Fed. Cir. 1998).

92. See 35 U.S.C. § 132(a) (1994) (providing that applicant can amend claims, so long as no new matter is thereby introduced); *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867 (Fed. Cir. 1988). In *Kingsdown*, the court noted that:

there is nothing improper, illegal or inequitable in filing a patent application for the purpose of obtaining a right to exclude a known competitor's product from the market; nor is it in any manner improper to amend or insert claims intended to cover a competitor's product the applicant's attorney has learned about during the prosecution of a patent application. Any such amendment or insertion must comply with all

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requisite support was present; a different Federal Circuit panel might not have been so generous.

Doctrinal play in the adequate support requirement thus facilitates standards capture. After *Unocal*, patentees have a decidedly stronger basis for argument that sufficient support exists for amendments aligning their patent claim coverage with industry standards specifications. Because the support question is one of fact, owners of standards patents will be particularly motivated to place the question of written description validity before a jury.

California Attorney General Bill Lockyer contends that when patent rights intersect with government regulation as in the *Unocal* case, public policy considerations warrant “strict construction” of the written description requirement.⁹³ The Federal Circuit chose not to address those larger public policy questions when determining written description compliance in *Unocal*, and with good reason. Modifying the substantive requirements of patentability for specific technologies required by industry standards would inject an unacceptable degree of uncertainty into an already unstable area of patent jurisprudence. Other tools are more appropriate.⁹⁴ Rather than modifying written description rules to invalidate patents on government-regulated subject matter, the better approach is to deal with such public policy concerns through limitations on patent enforcement such as compulsory licensing. In extreme cases, nonenforcement may be justified under a theory of patent misuse, as discussed below.⁹⁵

B. Nonavailability of Industry Standards as Prior Art

Unlike the patent law of other nations, U.S. patent law is a first-to-invent regime.⁹⁶ In order to operate as prior art that can potentially anticipate or render obvious the subject matter of a U.S. patent claim, a qualifying disclosure must have an effective date that is prior to the patent appli-

statutes and regulations, of course, but, if it does, its genesis in the marketplace is simply irrelevant

Id. at 874.

93. See Brief of Amici Curiae States, *supra* note 19, at 8-9.

94. See Brief of Amicus Curiae United States at 13 n.4, *Union Oil. Co. of Cal.* (No. 00-249) (agreeing with the *Unocal* court that “Section 112 states important requirements that protect the public against patent monopolies that are unjustified by the purposes of patent law,” but disagreeing with *Unocal*’s assertion that “Section 112 is particularly directed toward ‘gaming of the regulatory and patent regimes,’ or that it is the ‘only bulwark’ against such conduct”).

95. For a discussion of applicable remedies, see Part V *infra*.

96. See generally 3 CHISUM, *supra* note 71, § 10.01 (contrasting first-to-file systems with first-to-invent systems).

cant's invention date.⁹⁷ Elsewhere, a disclosure need only pre-date the patent application's filing date to operate as prior art.⁹⁸ Standards capture is accordingly facilitated by the U.S. first-to-invent regime, because standards-setting activity such as oral communications or documentation that might have been available as prior art under foreign patent regimes is often not available to invalidate a U.S. patent.

When a particular disclosure is available as prior art, however, U.S. law does not necessarily require such disclosure to have been publicly available in order to invalidate a patent. For example, in *OddzOn Products, Inc. v. Just Toys, Inc.*,⁹⁹ the Federal Circuit held that the secret disclosure of a design that inspired the inventor was properly considered prior art under 35 U.S.C. §§ 102(f) and 103.¹⁰⁰ Thus, a disclosure of standards technology made in confidence by member A of a standards-setting body to member B could potentially operate as anticipatory or obviating prior art with respect to patent claims later obtained by member B (so long as the disclosure antedates B's asserted invention date). In addition, disclosures of standards technology in the U.S. patent application of another, filed before the invention date of the asserted patent, are also potentially available as prior art as of the other's U.S. filing date, even though the patentee could not have known of the information at that time.¹⁰¹ The use

97. See 35 U.S.C. §§ 102(a), (e), (g) (1994) (requiring that novelty-destroying events occurred "before the invention" by the patent applicant); *id.* § 103 (requiring that invention be nonobvious "at the time the invention was made"). Under the arcane rules of the U.S. regime, a patentee's "invention date" may extend back in time to the date of conception, the mental part of the act of inventing, provided that the patentee was sufficiently diligent in working towards a reduction to practice. See *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996) (citing *Christie v. Seybold*, 55 F. 69, 76 (6th Cir. 1893) (Taft, J.)); cf. Paul M. Janicke, *Do We Really Need So Many Mental and Emotional States in United States Patent Law?*, 8 TEX. INTELL. PROP. L.J. 279, 290 (2000) (questioning whether "it make[s] sense to define the invention date in terms of what someone thought and when").

98. These countries operate under a first-to-file system that assesses novelty as of the applicant's *filing* date and are not concerned with any earlier *invention* date. See, e.g., Convention on the Grant of European Patents, Oct 5, 1973, art. 54, 13 I.L.M. 271, 286 [hereinafter EPC], available at <http://www.european-patent-office.org/legal/epc/e/ar54.html> (providing that "[a]n invention shall be considered to be new if it does not form part of the state of the art," and defining "state of the art" as "everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application").

99. 122 F.3d 1396 (Fed. Cir. 1997).

100. *Id.* at 1401, 1403-04.

101. 35 U.S.C. § 102(e) (1994). Before it is available as a § 102(e) reference, the earlier-filed application must either be published under § 122(b) or issue as a patent. See *id.* § 102(e)(1)-(2).

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of this type of “secret” prior art is also permitted in the case where another person has independently made the same invention before the patentee’s invention date, so long as the other person has not abandoned, suppressed or concealed her invention.¹⁰²

The patent owner in *Unocal* asserted an invention date of March 1990.¹⁰³ Assuming that this assertion is correct, Unocal’s invention date was prior to Unocal’s participation in the CARB deliberations that led to the clean gasoline standards at issue in that case.¹⁰⁴ Thus, any disclosures subsequently made by Unocal, or by the other refiners to Unocal, either in verbal or written form, during those deliberations could not operate as prior art to anticipate or render obvious the gasoline composition inventions claimed in Unocal’s ’393 patent.

Whether Unocal’s asserted invention date of March 1990 was correct as a matter of U.S. patent law involves fact-bound issues of conception and reduction to practice that the Federal Circuit did not consider because they were not raised on appeal.¹⁰⁵ The district court had previously denied the defendant refiners’ motion for judgment as a matter of law (JMOL) on the invention date issue, rejecting the refiners’ contention that Unocal’s evidence of its date of conception was inadequate to support the jury’s verdict.¹⁰⁶ The district court acknowledged that “reasonable people could disagree over the conclusion to be drawn from the evidence,” but in view of Unocal’s “contemporaneous computer records which supported the March 30, 1990 invention date,” refused to upset the jury’s determination.¹⁰⁷

The *Unocal* district court’s denial of JMOL glossed over the more difficult issue of whether Unocal’s evidence established a March 1990 con-

102. *Id.* § 102(g).

103. See *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 34 F. Supp. 2d 1208, 1214 (C.D. Cal. 1998) (stating that Unocal’s invention date was March 30, 1990). See also Brief of Amicus Curiae United States at 2, *Union Oil. Co. of Cal.* (No. 00-249) (stating that Unocal’s patent application was filed on December 13, 1990, and asserted an invention date of March 1990).

104. See Brief of Amicus Curiae United States at 2 n.1, *Union Oil. Co. of Cal.* (No. 00-249) (stating that at time of Unocal’s application filing date (Dec. 13, 1990), CARB had announced its intent to issue clean gasoline regulations but the precise parameters of those regulations were still unclear).

105. See *Union Oil Co. of Cal. v. Atl. Richfield Co.*, 208 F.3d 989, 991 (Fed. Cir. 2000) (affirming district court’s denial of defendant-appellant refiners’ motion for judgement as a matter of law on § 102 (anticipation) and § 112 (written description) validity issues, and affirming district court’s judgment of no inequitable conduct).

106. See *Union Oil of Cal. v. Atl. Richfield Co.*, No. CV-95-2379-KMW, 1998 U.S. Dist. LEXIS 22847, at *6-*8 (C.D. Cal. Mar. 10, 1998).

107. *Id.* at *8.

ception date for the subject matter of each of the 41 asserted claims of the '393 patent. In the refiners' view, the evidence of record was "inadequate to support the verdict because it did not disclose the combination of property ranges required by any [asserted] claim,"¹⁰⁸ an issue very much bound up with the adequacy of the written description support for those claims.¹⁰⁹

Because the United States evaluates novelty and nonobviousness as of the earlier invention date, rather than the later patent application filing date, the universe of what counts as potentially invalidating prior art is comparatively smaller than it is under the patent rules of other countries. Thus, under the United States regime it is relatively more likely that the content of industry standards will not be available as prior art to defeat patents on the technology involved in those standards. Owners of U.S. patent applications will retain the advantage of potentially antedating such standards and removing them as prior art references,¹¹⁰ a strategy not available in foreign patent systems. Outside the U.S., all disclosures of technology prior to a patent application's filing date, even those made through purely oral divulgation, count as prior art, at least for anticipation purposes.¹¹¹ Unless and until the U.S. migrates to a first-to-file system in which novelty is evaluated as of the filing date, attempts to capture industry standards through antedating the standards-setting activity remain a viable strategy for U.S. patent owners.

108. *Id.* at *7.

109. See *Fiers v. Revel*, 984 F.2d 1164, 1169-71 (Fed. Cir. 1993) (affirming Board's conclusion that Revel was not entitled to the benefit of his earlier-filed Israeli application that failed to provide an adequate written description of the beta-interferon DNA recited by interference count, in view of Board's determination that Revel's description was insufficient to evidence conception of the DNA and Board's reasoning that "one cannot describe what one has not conceived").

110. See 37 C.F.R. § 1.131 (2001) (USPTO regulation governing procedures for antedating prior art).

111. EPC, *supra* note 98, art. 54 (providing that "[a]n invention shall be considered to be new if it does not form part of the state of the art," and defining "state of the art" as "everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application").

Some commentators have proposed that any global patent system should eliminate the use of purely oral divulgations as prior art. See Michael N. Meller, *Principles of Patentability and Some Other Basics for a Global Patent System*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 359, 364 (2001). However, this approach would tend to exacerbate the standards capture problem because oral communications between participants at standards-setting meetings would be rendered unavailable as prior art.

C. Improper Inventorship, Lack of Originality, and Derivation under 35 U.S.C. § 102(f)

Standards capture is further facilitated through imprecise rules for naming inventors in U.S. patents. Patents that incorrectly designate inventorship are potentially invalid under 35 U.S.C. § 102(f). A patent will not be granted to the named inventor if “he did not himself invent the subject matter sought to be patented.”¹¹² However, new statutory provisions were added in the 1952 Patent Act that allow the correction of inventorship in many cases.¹¹³ For example, the Federal Circuit recently held in a case of first impression that a putative inventor need not have any claim to an ownership interest in a disputed patent in order to have standing to sue for correction of its inventorship.¹¹⁴

Determining the person(s) that should be named as inventor of a particular invention is a rather indeterminate task under U.S. patent law. The key criterion is contribution to the conception of the invention. Conception has been described as the “touchstone of inventorship.”¹¹⁵ More particularly, conception involves the formation in the mind of the inventor of the complete and operative invention, as it is thereafter reduced to practice.¹¹⁶

The question of who should be named an inventor under U.S. law also depends on how the invention is claimed. Most patents contain multiple

112. 35 U.S.C. § 102(f) (1994).

113. See 35 U.S.C. § 256 (1994) (providing that “error of omitting inventors . . . shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section”); Pannu v. Iolab Corp., 155 F.3d 1344, 1350 (Fed. Cir. 1998) (broadly interpreting § 256 as a “savings provision” to prevent loss of patent rights merely because inventors were improperly named). If the patent owner agrees to the correction of inventorship, this may be done by application to the USPTO. MCV, Inc. v. King-Seeley Thermos Co., 870 F.2d 1568, 1570 (Fed. Cir. 1989); 35 U.S.C. § 256, ¶ 1 (1994). If the patent owner does not agree, however, a federal district court has subject matter jurisdiction to correct inventorship so long as all parties have received adequate notice and an opportunity to be heard. 35 U.S.C. § 256, ¶ 2 (1994); *MCV*, 870 F.2d at 1570.

114. *Chou v. Univ. of Chicago*, 254 F.3d 1347 (Fed. Cir. 2001). The *Chou* court held that despite a former university graduate student’s obligation to assign all inventions to her university employer such that she would not have an ownership interest in the disputed patent, the student possessed standing to sue for correction of inventorship of that patent under 35 U.S.C. § 256 because of her “concrete financial interest” in potential royalty income and stock to which named inventors are entitled under the university’s patent policy. *Id.* at 1359. In dicta, the Federal Circuit suggested that even “reputational interest alone” (i.e., one’s interest in being named as an inventor to enhance professional prestige) might be enough to confer standing to sue for correction of inventorship. *Id.*

115. *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994).

116. *Id.* at 1228.

claims. Even if a person's inventive contribution was limited to the subject matter of only one out of many claims, she must be named as a co-inventor.¹¹⁷ In the absence of an agreement to the contrary, current Federal Circuit law provides that a person who is a co-inventor with respect to even a single claim is presumptively a co-owner of the entire patent.¹¹⁸ As such, that individual retains the power to grant a license to a third party to practice the invention of any of the claims of the patent, without the consent of the other inventors.¹¹⁹ This power to license may permit the co-inventor of only one claim to effectively shut down a patent infringement suit brought by the other co-owners against the licensee.¹²⁰

The Federal Circuit's currently expansive view of co-ownership thus suggests a defense strategy for users of industry standards. If the target of an infringement suit on a standards patent can establish that its employee should have been named co-inventor on even a single claim, or that an employee of another firm should have been so named, the target firm may avoid liability by either asserting co-ownership in the standards patent or by obtaining a license from the other firm.

A corollary to the proper naming of inventors is the patent law concept of derivation.¹²¹ Section 102(f) of the Patent Act "bars issuance of a valid patent to a person or persons who derive the conception of the invention from any other source or person."¹²² In other words, if a patent applicant claims an invention whose conception was communicated to the applicant by a third party who is not named as an inventor, any resulting patent on that invention would be subject to invalidation under Section 102(f).¹²³

The *Unocal* trial court flatly rejected an assertion by the refiners that Unocal had derived its inventions by "cop[ying] the invention from

117. 35 U.S.C. § 116 (1994).

118. Ethicon, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1465 (Fed. Cir. 1998) (stating that "in the context of joint inventorship, each co-inventor presumptively owns a pro rata undivided interest in the entire patent, no matter what their respective contributions. . . Thus, a joint inventor as to even one claim enjoys a presumption of ownership in the entire patent.").

119. *Id.* at 1468; DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 486 (2d ed. 2001).

120. See *Ethicon*, 135 F.3d at 1468 (directing district court to order dismissal of law-suit).

121. See 1 CHISUM, *supra* note 71, § 2.03 (characterizing rule of proper joinder of inventors as "corollary" to derivation rule).

122. *Id.*

123. See, e.g., *Campbell v. Spectrum Automation Co.*, 513 F.2d 932 (6th Cir. 1975) (affirming district court's determination that patent in suit was invalid on ground that named inventor had derived invention from another under 35 U.S.C. § 102(f)).

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CARB,”¹²⁴ and this issue was not addressed by the Federal Circuit on appeal. However, other standards-setting scenarios are easily foreseeable that could invoke inventorship and derivation disputes, particularly where a patent application is filed during or after the standard-setting body’s deliberations. At a minimum, patent applicants engaged in standards-setting activities must maintain thorough records that document their claim of sole inventorship. Asserted invention dates that post-date the applicant’s participation in standards-setting deliberations will be suspect.

D. Secret Pendency of U.S. Patent Applications

Standards-setting participants are significantly less likely to conceal the existence of their pending patent applications after passage of the American Inventors Protection Act (“AIPA”) of 1999.¹²⁵ As amended by the AIPA, the U.S. Patent Act now requires publication of most pending U.S. patent applications¹²⁶ eighteen months after the earliest priority date claimed by the applicant.¹²⁷ Competitors possessing prior art that appears to contravene an applicant’s assertion of novelty and nonobviousness may submit that art to the USPTO while the application is still pending.¹²⁸

Patent applicants who file only in the United States may opt out of eighteen-month publication, however.¹²⁹ Given the size and dominance of the U.S. technology market, particularly in the computer and software sector,¹³⁰ it is not improbable that the adoption of a U.S. industry standard

124. Union Oil Co. of Cal. v. Chevron U.S.A., Inc., 34 F. Supp. 2d 1222, 1224 (C.D. Cal. 1998) (finding that “[n]o competent evidence was introduced in support of . . . [the derivation] argument and the jury did not find the patent invalid on that basis”).

125. Intellectual Property and Communications Omnibus Reform Act of 1999, Title IV (American Inventors Protection Act of 1999), Pub. L. No. 106-113, §§ 4001-4808, 113 Stat. 1501A-521, 1501A-552-591 (1999).

126. Sabra Chartrand, *Patents: A New Law Removes Some Secrecy from the Applications*, N.Y. TIMES, Dec. 4, 2000, at C6 (reporting that USPTO is “preparing to publish 80 percent of all applications” under the new law).

127. 35 U.S.C. § 122(b)(1)(A) (1994).

128. 37 C.F.R. § 1.99(a) (2001) provides in part that:

[a] submission by a member of the public of patents or publications relevant to a pending published application may be entered in the application file if the submission complies with the requirements of this section and the application is still pending when the submission and application file are brought before the examiner.

129. 35 U.S.C. § 122(b)(1) (1994).

130. See Office of Information Technologies, *Size of the U.S. Computer Software Industry*, at <http://exportit.ita.doc.gov/ocbe/USIndust.nsf/806cbc35babba9838525695100784a38/538b5d24b610208985256962006c91c8!OpenDocument> (last updated Sept. 22, 2000) (reporting that from 1992 to 1997, total employment in the U.S. computer software industry increased by 75% totaling 1,457,405, and that estimated receipts rose from \$95

that requires the use of an applicant's invention might be far more valuable to some applicants than the possibility of multinational patent protection. Applicants seeking U.S. patent protection for standards technology could continue to conceal the existence of their pending applications from fellow standards-setting participants by foregoing international protection. Because the new USPTO publication rules will not independently guarantee that all pending patent applications pertinent to the ongoing development of industry standards will be revealed in a timely fashion, other disclosure-forcing mechanisms are required. Part V *infra* proposes the sanctions of compulsory licensing and unenforceability for patent misuse for certain failures to disclose patent rights during an industry standards-setting process.¹³¹

IV. PATENT RIGHTS ARE NOT INCOMPATIBLE WITH INDUSTRY STANDARDS

Industry standards often encompass proprietary technology, including technology already patented or the subject of pending patent applications.¹³² This is not surprising because one would expect an industry standard to be built upon novel and nonobvious advances in technology rather than upon whatever is available in the public domain.¹³³ This view is reflected in the position of leading trade associations that: "Standards in . . . high-tech industries must be based on the leading-edge technologies. Consumers will not buy second-best products that are based only on publicly

billion to \$231 billion). See generally J. Thomas McCarthy, *Intellectual Property—America's Overlooked Export*, 20 U. DAYTON L. REV. 809 (1995) (explaining how the rapidly growing computer and software industry and the emphasis on intellectual property is helping to change the face of American business).

131. See *infra* Part V.

132. See, e.g., American National Standards Institute, *Guidelines for Implementation of the ANSI Patent Policy*, available at <http://web.ansi.org/public/library/guides/ppguide.html> (last visited Mar. 2, 2002) (providing that ANSI has "no objection in principle to [the] drafting [of] a proposed American National Standard in terms that include the use of a patented item, if it is considered that technical reasons justify this approach"); *JEDEC Manual*, *supra* note 63, § 7.3 (stating that there is "no restriction against drafting a proposed standard in terms that include a patented item if technical reasons justify the inclusion," but that such standards should be considered "with great care"); see also Spoor, *supra* note 33, at 374 (contending that "many standards are partly or entirely covered by patents").

133. For example, JEDEC takes the position that "[c]ommittee discussion of pending or existing patents is . . . encouraged when the committee feels that the patented item or process represents the best technical basis for a standard." *JEDEC Manual*, *supra* note 63, at Annex G43.

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available information.”¹³⁴ Even the W3C, a leading proponent of the Open Source movement, proposed major changes to its patent policy that would permit W3C standards to incorporate patented technology.¹³⁵

Conversely, standards development is sometimes driven by the desire to *avoid* proprietary technology. For example, in late 2000 the National Institute of Standards and Technology (NIST), a nonregulatory federal agency within the U.S. Department of Commerce,¹³⁶ announced its selection of the new cryptographic standard that would replace the prior Digital Encryption Standard (“DES”).¹³⁷ The new standard was based on the Rijmen algorithm, named after the algorithm’s designer.¹³⁸ Notably, the Rijmen algorithm was the only algorithm among the five finalists that would not potentially infringe patents owned by Hitachi Corporation.¹³⁹ These patents, issued to Hitachi earlier in 2000, claimed an array of mathematical techniques used by ciphers.¹⁴⁰ Like NIST, other standards-setting organizations have gone to considerable lengths to establish that the technology they have adopted does not infringe any existing patents.¹⁴¹

Proprietary rights such as patent ownership appear inconsistent, at least facially,¹⁴² with the concept of “open standards,” or consensus-based, transparent standards that all are free to adopt and use, meant to ensure

134. Letter of Dan Bart, Electronic Industries Association (EIA)/Telecommunications Industry Association (TIA) Vice President, to Federal Trade Commission (Jan. 22, 1996) (on file with author), at 4.

135. *See supra* note 37 and accompanying text.

136. National Institute of Standards and Technology, *General Information*, at http://www.nist.gov/public_affairs/general2.htm (last visited Mar. 2, 2002).

137. Charles Seife & David Malakoff, *Science Scope*, 290 SCI. 25 (2000).

138. *Id.*

139. *Id.*

140. *Id.*

141. For example, in January 1999 the Seattle-based Internet company Intermind Corporation obtained a patent directed to its software that assists Web surfers in tracking how the sites they visit are using their personal data. *See* U.S. Patent No. 5,862,325 (issued Jan. 19, 1999) (titled “Computer-Based Communication System and Method Using Metadata Defining a Control Structure”). Intermind claimed that its ’325 patent was infringed by an “open-source,” or freely shared, privacy protocol for exchanging data specified by the W3C’s Platform for Privacy Preferences Project (“P3P”). W3C subsequently obtained an opinion of noninfringement from outside patent counsel and published the opinion on its web site. *See generally* World Wide Web Consortium, *Analysis of P3P and US Patent 5,862,325*, at <http://www.w3.org/TR/P3P-analysis> (Oct. 27, 1999).

142. *See* Mark A. Lemley, *Standardizing Government Standard-Setting Policy for Electronic Commerce*, 14 BERKELEY TECH. L.J. 745, 751-52 (1999) (noting that “as a rule intellectual property ownership in a de facto standard is inimical to open standard setting”).

interoperability of competing products.¹⁴³ Some standards proponents contend that consensus-based industry standards are antithetical to proprietary rights of individual firms, and would not permit any patenting of industry standards. Adherents of the “Open Source”¹⁴⁴ and “Free Software”¹⁴⁵ movements¹⁴⁶ support this view, pointing to classic, successful open source efforts developed in the absence of intellectual property rights, such as the computer operating system Linux, the scripting and programming language Perl, and the web server Apache.¹⁴⁷ Some legal scholars suggest that Congress could altogether forbid patenting in standards technology.¹⁴⁸

Contrary to these views, any *per se* exclusion from patenting of technical innovation encompassed in industry standards would be unwise for a number of reasons. Historically, technology-specific exclusions from patentability have rarely been implemented in U.S. patent law.¹⁴⁹ Such exclu-

143. See Paul Festa, *Why Open Standards Are a Myth* (Aug. 6, 1999), at <http://news.com.com/2102-1023-229217.html>. See also Lutsch et al., *supra* note 47, at N-1 (describing open standards as those that allow “anyone that will agree to follow the collective rules [to] participate in the standard”).

144. See Open Source.Org, *The Open Source Initiative: Home Page*, at <http://www.opensource.org> (last visited Mar. 2, 2002) (summarizing open source movement).

145. See GNU’s Not Unix!, at <http://www.fsf.org> (last visited Mar. 2, 2002) (summarizing Free Software Foundation’s mission). The Free Software Foundation’s objections to proprietary rights in software are set forth by Richard Stallman, *Why Software Should Not Have Owners*, at <http://www.fsf.org/philosophy/why-free.html> (last visited May 16, 2001).

146. See M. Craig Tyler & J. Wesley Jones, *Open-Source Software Raises Licensing Issues, Too*, NAT’L L.J., May 14, 2001, at C14 (arguing that open-source software is not in reality completely free of proprietary rights, and discussing “copyleft” protection of open-source code).

147. See Seltzer, *supra* note 39, at 53. Some commentators believe that Open Source proponents are behind the September 2000 votes by Germany, France, Italy and other countries having representation in the Administrative Council of the European Patent not to delete the prohibition on patenting computer programs “as such” from Article 52(2) of the European Patent Convention. See, e.g., Erwin J. Basinski, *An Open-and-Shut Case: The Diplomatic Conference to Revise the Articles of the European Patent Office Votes to Maintain the Status Quo Regarding Software Patents in Europe Pending Issuance of a New Software Patent Directive by the European Union*, 6 INT’L. J. COMM. L. & POL’Y 1, 2 (Winter 2000/2001).

148. See, e.g., Lemley, *supra* note 142, at 757 (suggesting that Congress could “preclude[] ownership of industry standards altogether,” or at least legislatively permit copying of technology needed to achieve interoperability, as in copyrighted application programming interfaces (APIs)).

149. The only technology-specific subject matter exclusions from patenting currently recognized in U.S. law involve inventions directed to national security and nuclear technology. See 35 U.S.C. § 181 (1994) (authorizing withholding of patent grants on inven-

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sions would also likely run afoul of U.S. international trade obligations.¹⁵⁰ More importantly, without patenting's promise of time-limited exclusionary control to permit recoupment of innovation costs,¹⁵¹ it is unlikely that an optimal level of research and development would occur in certain standards technologies. In the case of standards technology that is highly complicated and expensive to develop, "the availability and quality of the standard may depend on the reward provided, or not provided, by intellectual property law."¹⁵² The first-mover advantage simply may not be enough to spur the requisite level of innovation in these sophisticated technology markets. The development of compact disc ("CD") technology and the extensive patent holdings that allowed Philips and Sony to dominate the CD industry (and later, the Digital Versatile Disc ("DVD") market) are a powerful example.¹⁵³

The availability of patent protection may be especially important where the standard is a de facto standard. In the absence of formal standard-setting (or where formal standard-setting is significantly delayed), a particular product or technology may become a de facto standard simply because it is preferred and adopted by the majority of industry partici-

tions "detrimental to the national security"); 42 U.S.C. § 2181(a) (1994) ("No patent shall hereafter be granted for any invention or discovery which is useful solely in the utilization of special nuclear material or atomic energy in an atomic weapon.").

150. See General Agreement on Tariffs and Trade—Multilateral Trade Negotiations (The Uruguay Round): Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, Dec. 15, 1993, art. 27(1), 33 I.L.M. 81, 93-94 [hereinafter TRIPS] (providing that, subject to limited exceptions, "patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application").

151. This article proposes that owners of patents on industry standards technology retain their right to completely exclude other competitors or to voluntarily license those competitors at terms set by the patentee, safeguarded from imposition of compulsory licensing, so long as the patent owners fully disclosed their relevant patents and patent applications to the standards-setting body in a timely fashion that would have permitted the body to select alternative, nonpatented technology. See *infra* Part V.

152. David Friedman, *Standards as Intellectual Property: An Economic Approach*, 19 U. DAYTON L. REV. 1109, 1122 (1994).

153. See SHAPIRO & VARIAN, *supra* note 36, at 271 (noting that the patent portfolios of Sony and Philips were their "core assets" in the areas of CD and DVD technology); see also Press Release, Department of Justice, Justice Department Approves Joint Licensing of Patents Essential for Making DVD-Video and DVD-ROM Discs and Players (Dec. 17, 1998), available at http://www.usdoj.gov/atr/public/press_releases/1998/2120.htm (approving pooling of patents on DVD technology by Philips, Sony, and Pioneer)

pants.¹⁵⁴ If the product is not protected by patent or other intellectual property regime and can be freely copied, the firm that developed the technology may not be able to recoup its research and development costs, much less make a profit for its contribution to the industry.¹⁵⁵ As profit incentives decline, so too will the impetus to create innovative products capable of capturing the marketplace's attention and becoming de facto standards.

In contrast, it is more difficult to rationalize the need for patent rights that intersect with government-mandated health and safety standards.¹⁵⁶ The government can force compliance with its standards through imposition of fines or other penalties for noncompliance, while adherence to standards generated by industry consortia, at least in theory, is optional.¹⁵⁷ The potential for unfair exploitation of users of government-mandated standards is significant, for these users *must* employ the patented technology and will be required to pay whatever the patentee demands in terms of royalties. Rather than creating a distinct set of patentability rules for dealing with patents on subject matter that is the subject of government standards, the better approach is to permit such patents to issue but to limit their enforcement. The next Part suggests that when a technology standard is mandated by the federal government, the government should consider exercising its eminent domain power over patents that the owner refuses to license widely on commercially reasonable terms.

V. REMEDYING ABUSIVE STANDARDS CAPTURE

A number of remedies may apply when patents on the subject matter of industry standards conflict with the full achievement of the purposes of

154. For example, Microsoft's Windows operating system was not developed by industry as a *de jure* standard, but is surely a *de facto* standard by virtue of its overwhelming market share. *See Seltzer, supra* note 39, at 51.

155. *See Spoor, supra* note 33, at 369-70. This result is no different for innovators in the absence of standards; the distinguishing fact is the position of third parties. *Id.* at 370. Once a standard has been adopted, third parties are forced to copy the technology that is essential to the standard. *Id.*

156. *See* Press Release, Attorney General of California, Attorney General Bill Lockyer Files "Friend of the Court" Brief Over Unocal Gasoline Patent (Sept. 14, 2000), <http://caag.state.ca.us/newsalerts/2000/00-122.htm> (warning in *amicus curiae* brief to U.S. Supreme Court that, in addition to Unocal's patents on clean fuel formulations, "other companies may seek patents for other products that the state may mandate for public health and safety").

157. Industry participants could choose to forego the industry standard and develop successful alternatives, much as the Apple Macintosh operating system was developed as an alternative to DOS and Windows-based systems.

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those standards. This Part briefly discusses several nonpatent law remedies applied in earlier cases of standards capture, including antitrust and contract-based remedies (fraud, equitable estoppel, and implied license). Because of inherent limitations in these remedies, this Part proposes the application of the patent law-derived remedies of mandatory disclosure, compulsory licensing, and patent misuse-based nonenforcement to target certain cases of standards abuse by patent owners.

A. Antitrust Law

Past efforts to target the capture of industry standards through patenting have proceeded via governmental antitrust enforcement action, such as that culminating with the FTC's controversial consent decree in *In re Dell Computer Corp.*¹⁵⁸ In addition to such actions based on the Federal Trade Commission Act, the Sherman Act also provides authority for government antitrust enforcement as well as for private party antitrust lawsuits.¹⁵⁹ These actions are generally brought under Section 2 of the Sherman Act, which prohibits acquisition or maintenance of monopoly power through anticompetitive conduct.¹⁶⁰ The party asserting a Section 2 violation must show that the patentee has monopoly power in the relevant market, and that it has acquired or is maintaining that power in an anticompetitive manner.¹⁶¹

In practice, the requirement for a showing of market power excludes much of typical patent owner behavior from antitrust prosecution.¹⁶² The

158. 121 F.T.C. 616, 1996 FTC LEXIS 291 (1996). *See generally infra* notes 218-226 and accompanying text.

159. *See* Sherman Act, 15 U.S.C. § 2 (1994) (providing that “[e]very person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony . . .”); Clayton Act, 15 U.S.C. § 15(a) (1994) (establishing jurisdiction of federal district courts over private party treble damages actions by “any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws . . .”).

160. *See* 15 U.S.C. § 2 (1994).

161. *See* U.S. Philips Corp. v. Windmere Corp., 861 F.2d 695, 703 (Fed. Cir. 1988) (quoting United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966)). The Court in *Grinnell* held that:

[t]he offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.

Id.

162. *See* Robert P. Merges, *Reflections on Current Legislation Affecting Patent Misuse*, 70 J. PAT. & TRADEMARK OFF. SOC'Y 793, 793 (1988) (noting that “the often very

mere fact that a firm owns a patent on an industry standard does not itself demonstrate market power in the antitrust sense, because antitrust law recognizes the possibility of noninfringing substitutes for the patented technology.¹⁶³ Moreover, the successful assertion of an antitrust counterclaim against a patent owner bringing an infringement suit is relatively rare because of certain antitrust protections given to intellectual property holders. As applied by the Federal Circuit,¹⁶⁴ antitrust doctrine preserves a patentee's immunity from antitrust liability for enforcing its patent rights unless the accused infringer establishes either that: (i) the patent was obtained from the USPTO through knowing and willful fraud within the meaning of *Walker Process Equipment, Inc. v. Food Machinery & Chemical Corp.*,¹⁶⁵ or (ii) the infringement suit is a "mere sham" to cover what is in reality "an attempt to interfere directly with the business relationships of a competitor."¹⁶⁶ Thus, the owner of a patent on an industry standard who seeks to enforce its statutory right through bringing a patent infringement suit against a nonlicensed user of the standard enjoys presumptive immunity from liability under an antitrust counterclaim, even if maintenance of the infringement suit would have an anticompetitive effect.¹⁶⁷

limited (or 'thin') markets for patented technology make it difficult to apply antitrust law's consumer-demand definition of the relevant market"); *see also* Richard Calkins, *Patent Law: The Impact of the 1988 Patent Misuse Reform Act and Noerr-Pennington Doctrine on Misuse Defenses and Antitrust Counterclaims*, 38 DRAKE L. REV. 175, 187 (1988-89) (noting that "[a]s a practical matter, requiring proof of an antitrust violation to check a patentee's economic extension of his patent monopoly may mean that such violations will go unchecked because excessive costs and uncertainty are inherent in proving a rule of reason violation or monopolization charge").

163. *See Abbott Labs. v. Brennan*, 952 F.2d 1346, 1354-55 (Fed. Cir. 1991).

164. *See Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1068 (Fed. Cir. 1998).

165. 382 U.S. 172, 177 (1965).

166. *See In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1326 (Fed. Cir. 2000). The *Noerr-Pennington* doctrine of antitrust law provides that an attempt to influence the government (e.g., by the filing of a patent infringement lawsuit) is generally immune from antitrust liability. *Eastern R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127, 138-39 (1961); *United Mine Workers v. Pennington*, 381 U.S. 657, 670 (1965). An exception exists to *Noerr-Pennington* antitrust immunity for "sham litigation," where the defendant establishes that the litigation is objectively baseless. *See Prof'l Real Estate Investors v. Columbia Pictures Indus.*, 508 U.S. 49, 60-61 (1993) (discussing the two-part definition of "sham" litigation); *see also Filmtec Corp. v. Hydranautics*, 67 F.3d 931, 937-38 (Fed. Cir. 1995) (detailing contours of "sham litigation" exception under *Professional Real Estate Investors* in patent cases).

167. Cf. James R. Atwood, *Securing and Enforcing Patents: The Role of Noerr/Pennington*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 651, 659 (2001) (noting that in view of the heightened requirements of *Professional Real Estate Investors* for claiming

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Several commentators have proposed that these impediments to antitrust enforcement against patent owners could be circumvented by treating industry standards as “essential facilities” under U.S. antitrust doctrine.¹⁶⁸ The essential facilities doctrine provides that it is an antitrust violation for the owner of an essential facility (i.e., a “facility” essential for firms to compete) to deny access to that facility at nondiscriminatory terms.¹⁶⁹ Courts have held that a local electricity monopoly and a stadium are essential facilities.¹⁷⁰ In the classic essential facilities case, *United States v. Terminal R.R. Association of St. Louis*, the Supreme Court required that a cartel of railroads, collectively owning the only railroad switching yard in St. Louis, give all the railroads access to the yard on equal terms.¹⁷¹

Despite the seeming attractiveness of the essential facilities doctrine as an antidote to the capture of industry standards through patenting, courts have routinely rejected its application.¹⁷² For example, in *Alaska Airlines*

an exception to *Noerr*, “absent classic *Walker Process* facts—few [patent] infringement suits will fail to qualify for *Noerr* immunity”).

168. Lemley, *supra* note 27, at 1084; Wendy Milanese, *The Tension Must Break: The Irreconcilable Interplay Between Antitrust, Defenses to Infringement and Protection of Standardized Software Development Tools*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 407, 438 n.4 (1999) (suggesting that “an owner of software technology [that has become a standard] could be liable under the essential facility doctrine”); E. Robert Yoches, *Licensing Patents For Software and Computer Technology*, INTELL. PROP. TODAY (Jan. 1995), at 8 (noting that essential facilities doctrine “has not been applied to standards, but an aggrieved litigant could argue that a patentee controls an essential facility if its patent covers an industry standard necessary to make, use or sell certain equipment”).

169. See Milanese, *supra* note 168, at 438 n.4; see also *Alaska Airlines, Inc. v. United Airlines, Inc.*, 948 F.2d 536, 542 (9th Cir. 1991) (“Stated most generally, the essential facilities doctrine imposes liability when one firm, which controls an essential facility, denies a second firm reasonable access to a product or service that the second firm must obtain in order to compete with the first.”).

170. See Milanese, *supra* note 168, at 438 n.4 (citing, e.g., *Otter Tail Power Co. v. United States*, 410 U.S. 366, 378 (1973) (citing with approval district court’s finding that electric utility’s “refusals to sell at wholesale or to wheel were solely to prevent municipal power systems from eroding its monopolistic position”)); *Hecht v. Pro-Football, Inc.*, 570 F.2d 982, 992-93 (D.C. Cir. 1977) (holding that district court prejudicially erred by refusing to instruct jury on potential applicability of essential facilities doctrine to defendants’ football stadium).

171. 224 U.S. 383, 411-12 (1912); see Lemley, *supra* note 27, at 1084 (discussing the doctrine of “essential facilities”).

172. See, e.g., *Alaska Airlines*, 948 F.2d at 543-45; *Twin Labs., Inc. v. Weider Health & Fitness*, 900 F.2d 566, 569-70 (2d Cir. 1990) (holding that a sales force was not an “essential facility” because the potential for competition was not eliminated by its withdrawal); *Olympia Equip. Leasing Co. v. W. Union Tel. Co.*, 797 F.2d 370, 376-77 (7th Cir. 1986) (holding that the facts did not raise an essential facility case because defendant did not deny access to its telex services).

v. *United Airlines*,¹⁷³ the Ninth Circuit held that United Airline's computer reservation system was not an essential facility because United's practices merely resulted in imposing higher costs on United's competitor, the plaintiff Alaska Airlines, rather than eliminating Alaska from competition.¹⁷⁴ The same rationale could be applied to preclude application of the essential facilities doctrine in the case of standards promulgated by industry consortia, with which compliance is technically voluntary.

Although significant difficulties may arise in proceedings against the owners of patents on industry standards under U.S. antitrust law, given the limitations of the essential facilities doctrine and the breadth of a patent owner's presumptive immunity, antitrust-style remedies may be more viable for standards users in Europe. Applying European competition jurisprudence condemning "abuse of a dominant position,"¹⁷⁵ the European Commission in July 2001 ordered compulsory licensing as a remedy when the owner of copyright in a proprietary system for collecting data on German pharmaceutical sales of drugs that had become a "national standard" refused to license its competitors.¹⁷⁶ The Commission noted that the refusal to license an intellectual property right is not normally considered to be an abuse of a dominant position.¹⁷⁷ Compulsory licensing was justified in this case, however, because the German pharmaceutical industry had contributed to the development of the copyrighted system, there was no viable substitute for the system, and the system was therefore "indispensable" to operation of the German pharmaceutical industry.¹⁷⁸

Legal scholars have also criticized the essential facilities doctrine, which Professor Areeda has termed "an epithet in need of limiting principles." Phillip Areeda, *Essential Facilities: An Epithet In Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989); see also *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1357 (Fed. Cir. 1999) (noting that "the viability and scope of the essential facility theory has occasioned much scholarly commentary"); E. THOMAS SULLIVAN & JEFFREY L. HARRISON, *UNDERSTANDING ANTITRUST LAW AND ITS ECONOMIC IMPLICATIONS* 306 (3d ed. 1998) (describing essential facilities doctrine as "fairly dormant").

173. 948 F.2d 536 (9th Cir. 1991).

174. *Id.* at 545-46.

175. See TREATY ESTABLISHING THE EUROPEAN COMMUNITY, Oct. 2, 1997, O.J. (C 340) 173, 209, art. 82, available at http://www.europa.eu.int/eur-lex/en/treaties/dat/ec_cons_treaty_en.pdf (listing examples of "abuse by one or more undertakings of a dominant position within the common market").

176. See Press Release, Commission Imposes Interim Measures on IMS HEALTH In Germany (July 3, 2001), available at http://www.europa.eu.int/rapid/start/cgi/guesten.ksh? p_action.gettxt=gt&doc=IP/01/941|0AGED&lg=EN&display=.

177. *Id.*

178. *Id.*

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B. Fraud

Besides antitrust action, allegations of fraud have been leveled in private party litigation against those who participated in standards-setting while failing to disclose pertinent patent rights. In a pivotal case for the semiconductor industry,¹⁷⁹ a Virginia jury recently ordered that Rambus, Inc., a California designer of high-speed computer memory chips, pay \$3.5 million in punitive damages based on verdicts of actual and constructive fraud.¹⁸⁰ Asserted by defendant Infineon Technologies AG as a counterclaim to Rambus's charges of patent infringement,¹⁸¹ the fraud allegations were based on Rambus's nondisclosure of patents that cover an aspect of the standard developed by the Joint Electronic Devices Engineering Council ("JEDEC") for synchronous dynamic random access memory chips ("SDRAMs").¹⁸² Rambus, which plans to appeal the verdict, contends that it complied with JEDEC's disclosure policy, although it views the policies as "confusing, conflicting, poorly communicated and generally not complied with by other JEDEC members."¹⁸³

179. See Ariana Eunjung Cha, *Rambus Must Pay Damages*, WASH. POST, May 10, 2001, at E1 (describing Rambus litigation against Infineon, one of a number of suits pending that involves the Rambus patents on SDRAM technology, as "pivotal" for the industry).

180. See *id.*; Verdict Form, Rambus Inc. v. Infineon Tech., Inc., CIV.A. No. 3:00cv524 (E.D. Va. May 9, 2001), available at <http://www.rambusite.com/RambusVsInfineon/Docket319.htm>; see also Dan Goodin, *Rambus is Ordered by Jury to Pay \$3.5 Million to Infineon Over Patents*, WALL ST. J., May 10, 2001, at B8; George Leopold, *Update: Jury Awards Infineon \$3.5M on Fraud Charges*, EETIMES.COM, May 9, 2001, at <http://www.eetimes.com/story/OEG20010509S0053>.

181. See Defendants' Answer and Counterclaims, Rambus Inc. v. Infineon Tech., Inc., CIV.A. No. 3:00cv524 (E.D. Va. Sept. 25, 2000), available at <http://www.rambusite.com/RambusVsInfineon/Docket07.htm>.

182. Goodin, *supra* note 180. Infineon alleged that Rambus, as a member of JEDEC, had a duty to disclose all patents and pending patent applications relating to the SDRAM technology being standardized, and that Rambus intentionally failed to disclose its relevant patents and pending applications knowing that JEDEC's members would rely on Rambus's silence. Infineon further contended that the SDRAM standard was adopted based on that reliance, and that it suffered damages as a result of Rambus's failure to disclose when Rambus sued it for infringement of the nondisclosed patents. See Defendants' Answer and Counterclaims, *supra* note 181, at 33-34 (Count 7 alleging "Actual Fraud") and 34-35 (Count 8 alleging "Constructive Fraud"); Leopold, *supra* note 180.

183. Therese Poletti, *California-Based Chip Designer Rambus Found Guilty of Fraud in Patent Case*, SAN JOSE MERCURY NEWS, May 10, 2001, at 2 (quoting statement by Rambus Chief Executive Geoff Tate), available at 2001 WL 20964426 KRTBN.

C. Equitable Estoppel/Implied License

In certain circumstances, the doctrines of equitable estoppel and implied license may also operate to prohibit a patent owner from recovering for infringement if the owner fails to disclose the existence of its proprietary rights to a standards-setting organization, as illustrated by *Wang Laboratories v. Mitsubishi*.¹⁸⁴ Wang developed Single In-Line Memory Modules (“SIMMs”) in the 1980s and encouraged Mitsubishi to make 256K chips incorporating the SIMMs.¹⁸⁵ Wang succeeded in its campaign to have JEDEC adopt SIMMs as a standard, without informing JEDEC that it was seeking to patent the SIMMs technology.¹⁸⁶

The Federal Circuit affirmed a district court’s holding that the accused infringer Mitsubishi was entitled to an irrevocable, royalty-free implied license under Wang’s patent, based on six years of interaction between the parties that led Mitsubishi to reasonably infer consent to its use of the invention Wang had patented.¹⁸⁷ Although Wang did not itself make SIMMs and had to buy them from other manufacturers such as Mitsubishi, Wang benefited from Mitsubishi’s reliance in the form of lowered prices as the market for SIMMs grew.¹⁸⁸ The Federal Circuit acknowledged that its imposition of an implied license in *Wang* was “in the nature of” equitable estoppel, a recognized but rarely-established defense in U.S. patent law,¹⁸⁹

184. *Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571 (Fed. Cir. 1997).

185. *Id.* at 1575.

186. *Id.*

187. *Id.* at 1581-82.

188. *Id.* at 1579-80.

189. *Id.* at 1582; see *A.C. Aukerman Co. v. R.L. Chaides Constr.*, 960 F.2d 1020, 1041-44 (Fed. Cir. 1992) (en banc) (setting forth elements of equitable estoppel and reversing district court’s grant of summary judgment that patentee was equitably estopped to assert patent infringement).

The federal district courts have recognized the equitable estoppel defense in two cases involving patents on industry standards. In *Stambler v. Diebold, Inc.*, 1988 U.S. Dist. LEXIS 10132, 11 U.S.P.Q.2d (BNA) 1709 (E.D.N.Y. 1988), *aff’d*, 878 F.2d 1445 (Fed. Cir. 1989) (Table), the district court upheld an equitable estoppel defense where the patentee participated on an ANSI standards committee that adopted standards for card validation for ATM machines, without disclosing the existence of his patent which read on the proposed standards. *See id.* at *18-21. In the court’s view, the patentee “could not remain silent while an entire industry implemented the proposed standard and then when the standards were adopted assert that his patent covered what manufacturers believed to be an open and available standard.” *Id.* at *20. In *Potter Instrument Co. v. Storage Tech. Corp.*, 1980 U.S. Dist. LEXIS 14348, 207 U.S.P.Q. (BNA) 763 (E.D. Va. 1980), the district court held that the owner of a patent on the Group Coded Recording (GCR) recording and information storage technique was estopped from bringing an infringement action under the patent, where the patentee “actively participated with the ANSI Subcommittee in developing GCR as the industry standard” and “intentionally failed to bring

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but determined that “a formal finding of equitable estoppel [was not required] as a prerequisite to a legal conclusion of implied license.”¹⁹⁰

A potential weakness of the implied license/equitable estoppel defense as applied in industry standards cases is its requirement that a defendant establish detrimental reliance on the patentee’s assertion that it would not enforce its patent. Third parties who did not participate in the standards-setting activity and had no contact with the patentee would be unable to establish detrimental reliance. If those third parties ultimately had to infringe the patent in order to practice the standard, they would not necessarily benefit from another party’s establishment of an implied license/equitable estoppel defense.

A better approach would consider whether the owner of a standards patent should be permitted to enforce its patent, as a matter of public policy, regardless of the degree of prior contact between the patentee and the ultimate users of the standard. Patent law-based doctrines such as compulsory licensing and patent misuse, discussed *infra*, permit this approach.

D. Eminent Domain

Standards developed by the government rather than industry merit separate treatment. The assertion of private patent rights in the subject matter of government-mandated technology standards represents a uniquely difficult clash of policy concerns—protecting the public’s welfare by enforcement of the standards, versus maintaining sufficient incentives through availability of patents to bring forth adequate levels of innovation in the technology of the standards. There is little extant case law on this point, but what exists supports the position that government-mandated public health and safety requirements should, in some cases, trump the exclusivity rights of intellectual property owners. When the government mandates a standard, particularly one related to public health or safety, it

its ownership of the [] patent to the committee’s attention, notwithstanding the committee’s policy to the contrary.” *Id.* at *18. On appeal, the Fourth Circuit limited its affirmance of the *Potter* decision to an alternative ground of laches, and on procedural grounds did not decide the merits of the equitable estoppel defense beyond indicating that the appeals court “would be inclined to uphold this ground of decision on the facts of this case” *Potter Instrument Co. v. Storage Tech. Corp.*, 641 F.2d 190, 192 (4th Cir. 1981).

190. *Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1581 (Fed. Cir. 1997). The implied license was not in the nature of legal estoppel, the Federal Circuit explained, which “refers to a narrower category of conduct encompassing scenarios where a patentee has licensed or assigned a right, received consideration, and then sought to derogate from the right granted.” *Id.* (citing *Spindelfabrik v. Schubert*, 829 F.2d 1075, 1080 (Fed. Cir. 1987)).

is appropriate to require anyone holding patent rights on the subject matter of the standard to license all users on commercially reasonable terms.

In extreme cases, courts may interpret legislation protecting public health as effectively having revoked any conflicting intellectual property rights. In the copyright case of *SmithKline Beecham Consumer Healthcare, L.P. v. Watson Pharmaceuticals, Inc.*,¹⁹¹ plaintiff SmithKline asserted copyright in “labeling” material (i.e., a written user’s guide and an audiotape) that it had prepared and submitted to the U.S. Food and Drug Administration (“FDA”) for approval¹⁹² in connection with its application to make over-the-counter (“OTC”) sales of “Nicorette” gum, a product designed to help smokers overcome the need for nicotine.¹⁹³ When defendant Watson Pharmaceuticals sought FDA approval to sell a generic equivalent of Nicorette after the expiration of SmithKline’s patent on the gum, Watson submitted virtually identical copies of the user’s guide and audiotape to the FDA.¹⁹⁴ The Second Circuit affirmed the district court’s dismissal of SmithKline’s lawsuit alleging copyright infringement by Watson on the ground that the FDA regulations *require* that generic manufacturers use the same labeling¹⁹⁵ as that approved for the sale of the corresponding pioneer drug.¹⁹⁶ The court found that, “[b]ecause [the Hatch-Waxman] Amendments were designed to facilitate rather than impede the approval and OTC sale of generic drugs, the FDA’s requirement that Watson use much of SmithKline’s label precludes a copyright infringement action by SmithKline.”¹⁹⁷

The *SmithKline* case illustrates the imposition of a government-mandated standard that required infringement of the plaintiff’s intellectual property. The court considered the fulfillment of the pro-consumer, pro-generic drug policies underlying the Hatch-Waxman Act to be of such importance that it denied all remedies, injunctive and monetary, for copyright

191. 211 F.3d 21 (2d Cir. 2000), *cert. denied*, 121 S. Ct. 173 (2000).

192. *Id.* at 23.

193. *Id.*

194. *Id.*

195. See *id.* (citing 21 U.S.C. § 355(j)(2)(A)(v) (1994) and 21 C.F.R. § 314.127(a)(7)) (2000)).

196. *Id.* at 24-25.

197. *Id.* The Second Circuit viewed its decision as a straightforward resolution of conflict between the Copyright Act and the Hatch-Waxman Amendments to the Federal Food, Drug and Cosmetic Act. *Id.* at 27. The court declined to examine the defendant’s further contentions that its use of the plaintiff’s copyrighted label was permitted either under the copyright fair use defense of 17 U.S.C. § 107 or an implied, nonexclusive license purportedly granted to the FDA by SmithKline when it submitted the original label for approval. *Id.* at 25.

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infringement. Similarly, public health and welfare concerns have led other courts to refuse to enforce infringed patents.¹⁹⁸ In these rare cases, “the patentee’s legitimate exercise of monopoly rights conflicted sharply with a clear and immediate threat to public welfare—and the patents were not enforced.”¹⁹⁹ A paradigm case is *Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation*,²⁰⁰ in which the Ninth Circuit concluded that a patent owner’s refusal to license its process of irradiating foodstuffs to increase Vitamin D content, helpful in the treatment of rickets, for use with margarine, “the butter of the poor,” justified the refusal of the injunctive and accounting relief sought by the patent owner.²⁰¹

Another setting in which governmental concerns for public safety have prevailed over intellectual property owners’ exclusivity rights involves procurements of patented technology needed for military defense or other governmental purposes. When the U.S. federal government needs to procure technology such as a weapons system that is covered by a third party’s patent, federal law provides that the government can acquire and use that system from a nonlicensed supplier without fear of injunction.²⁰² Thus, the grant of a U.S. patent is always subject to a nonexclusive but royalty-bearing license in the federal government. Having waived its sovereign immunity for patent infringement, the government assumes any potential patent infringement liability on the part of its suppliers through

198. See *Vitamin Technologists, Inc. v. Wis. Alumni Research Found.*, 146 F.2d 941, 944-45 (9th Cir. 1945); *City of Milwaukee v. Activated Sludge, Inc.*, 69 F.2d 577, 593 (7th Cir. 1934) (affirming award of money damages for the city’s infringement of patent on sewage purification process but refusing to enjoin infringement because doing so “would close the sewage plant, leaving the entire community without any means for the disposal of raw sewage other than running it into Lake Michigan, thereby polluting its waters and endangering the health and lives of that and other adjoining communities”).

199. Merges, *supra* note 162, at 796.

200. 146 F.2d 941 (9th Cir. 1945).

201. *Id.* at 954-56. This holding is arguably dicta; however, the Ninth Circuit also held the patents in suit invalid, and opined that “the public interest is served better by our decision that the patents are invalid.” *Id.* at 956.

202. See 28 U.S.C. § 1498(a) (1994). The statute provides in pertinent part that: [w]henever 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.

Id. See *Decca Ltd. v. United States*, 640 F.2d 1156, 1166 (Ct. Cl. 1980) (explaining that “[t]he Government has a right to take patent licenses and cannot be enjoined from doing this”).

clauses in its procurement contracts.²⁰³ If the procured system is found to infringe, the government will pay a reasonable royalty to the patent owner.²⁰⁴ This statutory scheme represents a form of compulsory licensing in which the federal government condemns a license and is obligated to pay just compensation in accordance with Fifth Amendment Takings Clause principles.²⁰⁵

Applying these principles to a setting in which the owner of a patent on a government-imposed standard refuses to license certain competitors, or offers licenses only at commercially unreasonable rates, the standards users might initiate declaratory judgment proceedings and assert non-liability in accordance with the public policy rationale of *SmithKline*. A better approach from the standpoint of preserving incentives for innovation would permit the government to initiate eminent domain proceedings against the standards patent owner, along the lines of the statutory scheme found at 28 U.S.C. § 1498.²⁰⁶ Significant legislative amendment would be

203. 28 U.S.C. § 1498(a) (1994) provides that:

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.

204. *Decca*, 640 F.2d at 1167 (identifying reasonable royalty computation as “preferred method” of determining value of patent license taken by government).

205. The U.S. federal government cannot be enjoined from infringing another’s U.S. patent, and it is deemed to have condemned a license in the eminent domain sense when it infringes. See *Decca*, 640 F.2d at 1166. If the federal government is found to have infringed, it must pay “just compensation” for the taking in accordance with the Fifth Amendment. *Id.* at 1167 n.17. The typical remedy for infringement by the government is a reasonable royalty. *Leesona Corp. v. United States*, 599 F.2d 958, 968 (Ct. Cl. 1979).

The *Leesona* court explained that:

[t]he nature of the property taken by the government in a patent infringement suit has traditionally been a compulsory compensable license in the patent, and just compensation has in most cases been defined by a calculation of a “reasonable royalty” for that license, or, when a reasonable royalty cannot be ascertained, another method of estimating the value of the lost patent.

Id.

206. *Contra CCC Info. Servs. v. MacLean Hunter Mkt. Reports, Inc.*, 44 F.3d 61, 74 (2d Cir. 1994). The CCC Info court stated that it was:

not prepared to hold that a state’s reference to a copyrighted work as a legal standard . . . results in loss of the copyright. . . . [A] rule that the adoption of such a reference by a state legislature or administrative body deprived the copyright owner of its property would raise very substantial problems under the Takings Clause of the Constitution.

Id.

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required, however, to extend the existing statutory framework to all infringements committed by parties other than the U.S. federal government or those in contractual privity therewith, i.e., to all entities that must comply with the federal government-mandated standard.²⁰⁷ Because it is based on the federal Constitution, this eminent domain proposal does not address the problem of capture of standards mandated by state governments, such as the CARB clean gasoline formulations in the *Unocal* case.²⁰⁸

E. Compulsory Licensing as a Sanction for Failure to Disclose Patent Rights

The case for compulsory licensing to all users of a patented standard is less compelling when the standard is a consensus standard promulgated by an industry consortium rather than one mandated by the government. In the case of industry-generated standards, those who implement the standard are not legally bound to do so.²⁰⁹ Compulsory licensing should be required in this context only as a penalty for failure to timely disclose patent rights relevant to the standard. In order to avoid this penalty, this section proposes that any firm which participates²¹⁰ in creating an industry standard while owning or seeking to obtain patent rights in some aspect of

207. Currently the statutory scheme only covers infringements that are specifically authorized or consented to by the U.S. government, e.g., by a government contractor. 28 U.S.C. § 1498(a) (1994) provides in part that:

[f]or 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.

208. Whether those entities obligated to comply with state government-mandated standards might claim an Eleventh Amendment shield from liability for patent infringement as instrumentalities of a state, *see Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank*, 527 U.S. 627 (1999), is beyond the scope of this article.

209. *See supra* note 157 and accompanying text.

210. The degree of “participation” necessary to trigger such a disclosure requirement is at issue in the ongoing Rambus patent litigation over standards for SDRAM computer memory. Cha, *supra* note 179. Rambus filed its parent patent application on SDRAM technology before joining the Joint Electronic Devices Engineering Council (JEDEC) and the patents issued after Rambus withdrew from JEDEC. Michael Kanellos, *Infineon Fights On With Rambus Countersuit*, NEWS.COM (May 7, 2001), *at* <http://news.com.com/2100-1001-257157.html?legacy=cnet>. Rambus contends that it was a passive member of JEDEC, attending meetings but never advocating or voting on standards related to its patent. *Id.* According to Infineon, however, Rambus amended its secretly pending patent applications while participating in JEDEC, in order to obtain patent claims that encompassed the technology being adopted as the JEDEC standard. *See Cha, supra* note 179.

the standard must disclose the existence of any such patents or pending patent applications.²¹¹

The proposed disclosure obligation for standards-setting participants would parallel that created by the existing body of inequitable conduct case law²¹² and the USPTO regulations placing a duty of candor on all patent applicants in their dealings with the agency.²¹³ The duty of candor requires disclosure to the USPTO of any information known to the applicant that is material to patentability.²¹⁴ The penalty for nondisclosure is

211. Some commentators question whether patent *applications*, as opposed to issued patents, should be subject to a disclosure obligation. *See, e.g.*, Baumann, *supra* note 36, at 3 (identifying this issue as an “open question” and noting that applications “represent[] a work in progress that is kept secret during the examination process” and that “the claims of a patent application likely will change as the application is examined at the Patent Office”). The issue is to some extent moot because, as discussed in the text, most newly-filed U.S. patent applications will be automatically published eighteen months after their earliest priority date.

More broadly, the necessity that standards-makers possess full and complete information of any potential proprietary rights in the subject matter of a standard under development justifies requiring that all standards-setting participants make full and immediate disclosure of pending patent applications. *Cf. JEDEC Manual*, *supra* note 63, at Annex F42 (mandating that standards which require use of patented technology “may not be considered by a JEDEC committee unless all of the relevant technical information covered by the patent or pending patent is known”) (emphasis added). The failure to implement a requirement for timely disclosure of pending patent applications would deprive standards-setting organizations of the option to adopt an alternative standard that utilized nonproprietary technology. *See In re Dell Computer Corp.*, 121 F.T.C. 616, 1996 FTC LEXIS 291, *15 (1996) (contending that enforcement action was appropriate where evidence established that standards-setting body “would have implemented a different non-proprietary design had it been informed of the patent conflict during the certification process, and where [patentee] failed to act in good faith to identify and disclose patent conflicts”).

212. *See generally* 6 CHISUM, *supra* note 71, § 19.03 (“Fraudulent Procurement—Inequitable Conduct”) (citing inequitable conduct case law and a “vast” body of inequitable conduct literature).

213. 37 C.F.R. § 1.56 (2001).

214. The USPTO regulations provide that:

[e]ach individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section.

Id. § 1.56(a). The regulations further define “material to patentability” as:

[information that] is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or
(2) It refutes, or is inconsistent with, a position the applicant takes in:

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severe in order to motivate compliance: all claims of an inequitably procured patent are rendered unenforceable.²¹⁵ The serious nature of this disclosure obligation is familiar to all patent applicants and their patent counsel. Thus, compliance with parallel disclosure rules in the standards-setting arena should not represent an additional undue burden on standards-setting participants.

Mandating the disclosure of all relevant patent holdings to the standards-setting body is essential because such a requirement preserves for the standards-setting body the option to decide whether it will adopt a standard that requires the use of the patented technology or develop a different standard that avoids it altogether.²¹⁶ Imposing the threat of compulsory licensing for failure to comply with the disclosure requirement will help to ensure (though not guarantee²¹⁷) compliance, in much the same

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

Id. § 1.56(b).

215. *See Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988) (en banc).

216. Hyundai, a party to the ongoing Rambus patent litigation, contends that JEDEC was also denied this option when it developed the SDRAM standard. *See Kanellos, supra* note 210, at 2 (quoting Hyundai lawyer Patrick Lynch as contending that “[i]f Rambus had disclosed these patents at JEDEC . . . these standards would never have been adopted. . . . The intent was to have an open standard”).

217. Compulsory licensing is generally understood to provide some form of royalty payment to the patentee, although abrogating the patentee’s right to exclude all others from practicing the invention. *See, e.g., TRIPS, supra* note 150, art. 31(h), at 95 (providing that patent holder “shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization”). It is possible that a patentee might withhold information on its patent rights while participating in standards-setting activity, on the basis that having its patented technology adopted as the standard and facing the sanction of being required to license the patent at a particular royalty rate is still economically preferable to the adoption of an industry standard that would avoid the patent altogether. In such a case, however, the withholding of information about patent rights would most likely be seen by courts as intentional or willful. This Article proposes that if a nondisclosure of patent rights is found to be intentional or willful, the more severe penalty of holding the patent unenforceable (which does not entitle the patentee to receive any royalties) should apply. *See infra* Part V.F.

manner as the threat that patents procured through intentional withholding of material prior art from the USPTO will be rendered unenforceable. If an industry standard is ultimately adopted that requires the use of a patent which was not timely disclosed during the standard-setting activity, the imposition of compulsory licensing will ensure that all users of the standard can practice the patent without fear of injunction.

The Federal Trade Commission (“FTC”) imposed compulsory licensing, without any remuneration for the patentee, as the remedy in *In re Dell Computer Corporation*,²¹⁸ a ground-breaking FTC antitrust enforcement action. Dell had participated in setting the Video Electronics Standards Association (“VESA”) standard for the VESA Local Bus or “VL-bus” (a computer hardware device that carries instructions between a computer’s CPU [central processing unit] and its peripheral devices),²¹⁹ without disclosing that it owned a patent on an aspect of the VL-Bus design.²²⁰ The FTC cited evidence indicating that had VESA been aware of Dell’s patent, it would have implemented a different, nonproprietary design.²²¹ Finding that Dell’s actions constituted “unfair methods of competition in or affecting commerce” in violation of Section 5 of the Federal Trade Commission Act,²²² the FTC imposed a consent order that broadly prohibited Dell from enforcing its ’481 patent against “any person or entity . . . using or applying VL-bus in its manufacture of computer equipment” for the life of the patent.²²³ In effect, the FTC required that Dell grant royalty-free licenses under its patent to anyone using Dell’s patented technology to practice the VL-bus standard.²²⁴

218. 121 F.T.C. 616, 1996 FTC LEXIS 291 (1996).

219. *Id.* at *2.

220. *Id.* at *2-*3. Dell obtained U.S. Patent No. 5,036,481 before it joined VESA’s Local Bus Committee, but did not disclose the patent’s existence to VESA. *Id.* Voting on VESA’s proposed VL-bus design standard, Dell’s representative certified in writing that the proposed standard did not infringe any intellectual property rights owned by Dell. *Id.* at *3. Dell thereafter threatened to sue firms planning to follow the VL-bus standard for infringement of its patent. *Id.* at *3-*4. The FTC majority concluded that Dell’s actions constituted “unfair methods of competition in or affecting commerce” in violation of Section 5 of the Federal Trade Commission Act (15 U.S.C. §§ 41-58). *Id.* at *5.

221. *Id.* at *15. The FTC majority opined that the wide acceptance of VESA’s VL-bus standard “effectively conferred market power upon Dell as the patent holder,” and that this market power “was not inevitable.” *Id.* at *15 n.2. For these reasons, enforcement action for “unfair methods of competition in or affecting commerce” in violation of section 5 of the Federal Trade Commission Act, 15 U.S.C. §§ 41-58, was considered appropriate by the majority. *Id.* at *15.

222. See generally 15 U.S.C. §§ 45(a)(1) (1994).

223. *In re Dell Computer*, 1996 FTC LEXIS 291, at *8.

224. *Id.* at *36-*37 (Commissioner Azcuenaga, dissenting).

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The dissenting Commissioner in *Dell Computer* attacked the majority for imposing “a strict liability standard, under which a company would place its intellectual property at risk simply by participating in the standards-setting process.”²²⁵ She pointed out that simply being aware of the existence of a patent does not equate with an awareness that it reads on a given standard,²²⁶ a point well-taken in view of the uncertainty of determining patent infringement under current Federal Circuit case law.²²⁷ Other commentators have questioned the ability of any major corporation to identify with certainty any and all patent holdings that will be implicated by the practice of a given standard, and some firms strongly oppose the imposition of a disclosure requirement.²²⁸ Because many firms that participate in standards-setting have extensive patent portfolios,²²⁹ standards-setting organizations contend that having to conduct exhaustive patent searches prior to participating in standards-setting represents a significant resource burden that will chill the participation of those firms.²³⁰

Such concerns are likely overstated. Many standards-setting organizations already require that their participants make full disclosure of any relevant intellectual property rights.²³¹ Moreover, firms with large patent

225. *Id.* at *29 (Commissioner Azcuenaga, dissenting).

226. *Id.* at *29 n.5.

227. *Cf. Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1476 (Fed. Cir. 1998) (en banc) (Rader, J., dissenting) (noting study reporting that approximately 40% of patent claim determinations are reversed in whole or in part on appeal to the Federal Circuit).

228. *See In re Dell Computer*, 1996 FTC LEXIS at *40 (Commissioner Azcuenaga, dissenting) (stating that seven of the eleven public comments received in response to FTC’s Federal Register notice of proposed consent order “strongly opposed the imposition on participants in the standards-setting process of any duty to identify and disclose patents”).

229. *See Letter from Dan Bart, Vice President, Electronic Industries Association (EIA)/Telecommunications Industry Association (TIA), to Federal Trade Commission* (Jan. 22, 1996) (on file with author), at 3 (stating that “[m]any of the larger member companies [that participate in the process of voluntary standards development] have literally tens of thousands of patents”).

230. *See id.* at 4 (stating position of EIA/TIA that FTC’s decision in *Dell Computer* “should not be interpreted to place an affirmative duty on companies to perform exhaustive patent searches in order to participate in standards activities. Such a requirement would deter many companies in the electronics and communications industries from engaging in standards development, especially larger companies with extensive patent interests”). *See also In re Dell Computer*, 1996 FTC LEXIS 291 at *40 (Commissioner Azcuenaga, dissenting) (noting comments received by FTC from American National Standards Institute (ANSI) in opposition to “the imposition of any affirmative duty to identify and disclose patents, because it would chill participation in standards development”).

231. *See supra* Part II.C, “Intellectual Property Policies,” notes 62-64 and accompanying text.

portfolios must already address the resource problems engendered by ensuring compliance with their duty to disclose information material to patentability to the USPTO.²³² Patent owners who seek to position their technology as an industry standard must accept the burden of maintaining thorough oversight of their patent portfolios as a cost of doing business in industries that give rise to standards.²³³ An expansive disclosure requirement is not likely to chill industry participation in standards-setting, because “participation in standards-setting is motivated by commercial self-interest and is not a form of community service.”²³⁴

If compulsory licensing is imposed as a remedy for nondisclosure of patent rights pertinent to industry standards as proposed herein, some competent authority must set a licensing fee structure that will determine the patentee’s remuneration.²³⁵ The perceived difficulty of quantifying a commercially reasonable royalty “has long been a leading argument against adoption of compulsory licensing in the U.S.”²³⁶ Permitting the patent owner to set the royalty at any desired level is for all practical purposes to permit the patentee to refuse to license, and would defeat the underlying purpose of the compulsory licensing—providing access to the patented invention for all users of the industry standard. Panels of industry experts should be created to set licensing fee schedules for standards in

232. In fact, large firms are less likely to be negatively impacted by a standards-setting disclosure obligation than small firms. *See Baumann, supra* note 36, at 3 (noting that “[l]arge companies have resources to track disclosures and educate employees who attend standards meetings, but smaller companies lack the resources to perform either of these services”).

233. *Cf. Sage Prods. v. Devon Indus.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997). The *Sage Products* court stated that, in the context of a doctrine of equivalents analysis, [g]iven a choice of imposing the higher costs of careful prosecution on patentees, or imposing the costs of foreclosed business activity on the public at large, this court believes the costs are properly imposed on the group best positioned to determine whether or not a particular invention warrants investment at a higher level, that is, the patentees.

Id.

234. *In re Dell Computer Corp.*, 121 F.T.C. 616, 1996 FTC LEXIS 291, *46 n.18 (1996) (Commissioner Azcuenaga, dissenting) (citing four of the eleven public comments received in response to FTC’s Federal Register notice of proposed consent order).

235. *See General Agreement on Tariffs and Trade Uruguay Round Agreements, Agreement on Trade-Related Aspects of Intellectual Property Rights*, art. 31(h) (1994) (providing that where a member country’s law provides for compulsory licensing, “the right holder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization”).

236. *See Mueller, supra* note 45, at 63 (citing EDITH TILTON PENROSE, THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM 172 (1951) (listing difficulty of reasonable royalty determination as one of six primary arguments against compulsory licensing)).

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particular industries, rather than delegating the task to a government official or agency possessing less familiarity with the industry standard in question.²³⁷

F. Patent Misuse

Thus far, few courts have even considered the applicability of the patent misuse doctrine to the problem of industry standards capture via patenting, and no court has yet found patent misuse in this context.

In one recent case alleging infringement of patents covering an industry standard for 56K modems, the district court in *Townshend v. Rockwell International Corp.* rejected the patent misuse defense.²³⁸ Townshend obtained several patents on 56K modem technology and licensed them to 3Com Corporation.²³⁹ After lobbying by Townshend and 3Com, the International Telecommunications Union (“ITU”) adopted Townshend’s patented technology as the V.90 industry standard for 56K modems.²⁴⁰ Accused infringers Rockwell and Conexant Systems, Inc. alleged that Townshend refused to license the patented technology to them at reasonable commercial terms, instead requiring “unfair royalty rates, double-charging of customers and manufacturers, mandatory cross-licenses, and reservation of the right to condition licenses on the resolution of litigation.”²⁴¹ They charged that Townshend’s licensing tactics amounted to patent misuse, as well as antitrust violations, unfair competition under state law, and inequitable conduct.²⁴²

Having rejected the antitrust challenge on the ground that the defendants had failed to establish any anticompetitive conduct by Townshend, the district court summarily rejected the patent misuse defense on the same basis.²⁴³ Because “a complete refusal to license does not constitute patent misuse,”²⁴⁴ the court asserted, Townshend’s lesser act of proposing

237. See Milanese, *supra* note 168, at 437 (proposing establishment of “an independent body of industry persons to determine the appropriate royalty or licensing fee” for licensing patents on standardized software tools).

238. See generally *Townshend v. Rockwell Int’l Corp.*, 2000 U.S. Dist. LEXIS 5070, 55 U.S.P.Q.2d (BNA) 1011 (N.D. Cal. 2000).

239. *Id.* at *3-*4.

240. *Id.* at *6-*7.

241. *Id.* at *22.

242. *Id.* at *5.

243. *Id.* at *46-47.

244. *Id.* at *47 (stating that “[p]ursuant to 35 U.S.C. § 271(d), a patentee is not deemed guilty of misuse or illegal extension of the patent right by refusing to license or use any rights to the patent”).

a set of licensing terms (even though perceived by the defendants as commercially unreasonable) “cannot constitute patent misuse.”²⁴⁵

Townshend illustrates that the most prominent obstacle to application of the patent misuse defense in the standards capture context is the statutory limitation imposed by the Patent Misuse Reform Act of 1988. Section 271(d)(4) provides that when “otherwise entitled to relief for infringement or contributory infringement of a patent,” a patent owner shall not be deemed guilty of patent misuse by reason of his having “refused to license or use any rights to the patent”²⁴⁶

Below, I examine the development of the section 271(d)(4) exemption and conclude that it should not prevent courts from applying the patent misuse doctrine in appropriate cases to curb standards abuse by patent owners. Nonenforcement of patent rights based on patent misuse should be limited, however, to the narrow class of cases in which the patent owner participated in the standards-setting activity and intentionally or willfully failed to disclose its relevant patent or pending patent application. Although I disagree with the *Townshend* court’s blanket assessment of section 271(d)(4), I believe it was correct in refusing to find patent misuse on the facts before it. In contrast to *Dell Computer*, the patent owner in *Townshend* disclosed his pending patent applications as well as his proposed licensing terms to the ITU during its standards-setting deliberations.²⁴⁷ The district court found that the ITU thereafter adopted Townshend’s technology as the standard with full knowledge of the patents and proposed licensing terms.²⁴⁸ When a patent owner makes full disclosure of its relevant patent holdings to the standard-setting body, and the body adopts a standard requiring the patented technology with advance knowledge of the licensing terms sought by the patentee, patent misuse is avoided.

1. Development of the Patent Misuse Doctrine

Patent misuse is a rather amorphous doctrine,²⁴⁹ generally understood as “a method of limiting abuse of patent rights separate from the antitrust

245. *Id.* Former FTC Chairman Pitofsky has criticized *Townshend* as “illustrating the way *CSU v. Xerox* may be misused.” Pitofsky, *supra* note 38, at 546 n.27 (citing *Townshend* court’s dismissal of antitrust counterclaims on ground that patentee had legal right to refuse to license on any terms).

246. 35 U.S.C. § 271(d)(4) (1994).

247. *Townshend*, 2000 U.S. Dist LEXIS at *33, *47.

248. *Id.* at *47.

249. Professor Chisum observes in the misuse area “the absence of a clear and general theory for resolving the problem of what practices should be viewed as appropriate exercises of the patent owner’s statutory patent rights.” 6 CHISUM, *supra* note 71,

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laws.”²⁵⁰ Procedurally, patent misuse is asserted as an affirmative defense to an allegation of patent infringement.²⁵¹ The misuse doctrine has its genesis in judicial decisions that predate any significant development of U.S. antitrust law.²⁵²

Different policies ground patent misuse and antitrust doctrine. Misuse focuses primarily on the patentee’s behavior in expanding the scope of its rights beyond the statutory patent grant, while antitrust measures the impact of that behavior on the marketplace.²⁵³ Although the same conduct may form the basis for both a patent misuse defense and an antitrust allegation, establishing that the patentee violated the antitrust laws requires “much more”—in addition to the fact of the misuse, showings of power in the relevant market and anticompetitive effect.²⁵⁴

As with the parallel doctrine of copyright misuse,²⁵⁵ the roots of patent misuse lie in the equitable doctrine of unclean hands,²⁵⁶ “whereby a court

§ 19.04. But given that misuse is a doctrine based in equity, the lack of clarity is hardly surprising. See Merges, *supra* note 162, at 796 (noting that “[t]he nature of equity is that it is somewhat ‘messy’”).

250. B. Braun Med. v. Abbott Labs., 124 F.3d 1419, 1426 (Fed. Cir. 1997).

251. Virginia Panel Corp. v. Mac Panel Co., 133 F.3d 860, 868 (Fed. Cir. 1997); Windsurfing Int’l, Inc. v. AMF, Inc., 782 F.2d 995, 1001 (Fed. Cir. 1986).

252. USM Corp. v. SPS Techs., Inc., 694 F.2d 505, 511 (7th Cir. 1982).

253. Calkins, *supra* note 162, at 187 (explaining that the antitrust laws are “intended to foreclose unreasonable restraints of trade and illegal monopolies,” and consequently bear severe punishments for violators, while patent misuse doctrine, which merely suspends patent owner’s right to recover for infringement, “‘prevent[s] a patentee from projecting the *economic* effect of his admittedly valid grant beyond the limits of his legal monopoly,’” which effect can occur “regardless of whether the defendant in a patent infringement action is injured or a monopoly in trade and commerce results”) (emphasis added) (quoting Panther Pumps & Equip. Co. v. Hydrocraft, Inc., 468 F.2d 225, 231 (7th Cir. 1972)).

254. Marina Lao, *Unilateral Refusals to Sell or License Intellectual Property and the Antitrust Duty to Deal*, 9 CORNELL J. L. & PUB. POL’Y 193, 207 (1999).

255. See generally Brett Frischmann and Dan Moylan, *The Evolving Common Law Doctrine of Copyright Misuse: A Unified Theory and Its Application to Software*, 15 BERKELEY TECH. L.J. 865 (2000). The doctrine of copyright misuse derives from the unclean hands doctrine and bars a copyright owner from prevailing in an action for infringement of the misused copyright. See Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970, 972 (4th Cir. 1990) (finding copyright misuse where software copyright owner’s license prohibited licensee from developing any kind of related software, not just that protected by copyright). The accused infringer bears the burden of establishing that the owner used its copyright to gain rights in unprotected material. See *id.* at 979 (holding that “[t]he misuse arises from Lasercomb’s attempt to use its copyright in a particular expression, the Interact software, to control competition in an area outside the copyright, i.e., the idea of computer-assisted die manufacture, regardless of whether such conduct amounts to an antitrust violation”). A finding of copyright misuse does not invalidate the

of equity will not lend its support to enforcement of a patent that has been misused.”²⁵⁷ Application of the misuse doctrine seeks to restrain practices that generate “anticompetitive effect” from the patent right.²⁵⁸

Although the patent misuse doctrine has been broadly defined as preventing a patent owner from using its patent in a manner contrary to the public interest, this characterization is too indefinite to provide any meaningful notice to a patentee of the boundaries of prohibited conduct.²⁵⁹ In practice, determinations of patent misuse have been based upon a fairly narrow range of specific acts or practices of the patent owner,²⁶⁰ often (but not exclusively) in the context of patent licensing.²⁶¹ The key inquiry is whether, by imposing a challenged condition (e.g., the imposition of an onerous term in a license granted under the patent), the patent owner has “impermissibly broadened the ‘physical or temporal scope’ of the patent grant with anticompetitive effect.”²⁶²

A paradigm case of patent misuse involves a patentee “tying” the grant of a patent license to the licensee’s promise to purchase from the patent owner a nonpatented, staple good. In *Morton Salt v. Suppiger*, the U.S.

copyright, and the copyright owner may sue for infringement after purging the misuse. *See id.* at 979 n.22. The courts have relied on public policy arguments rather than anti-trust principles in evaluating the copyright misuse defense. *See Lasercomb*, 911 F.2d at 978; *see generally* Alcatel USA, Inc. v. DGI Techs., Inc., 166 F.3d 772 (5th Cir. 1999); Practice Mgmt. Info. Corp. v. Am. Med. Ass’n, 121 F.3d 516 (9th Cir. 1997).

256. In a recent “unclean hands” case, a Northern District of California judge declared a patent unenforceable for “inequitable conduct” that had occurred during the litigation to enforce the patent (rather than the typical inequitable conduct involving procurement of the patent in the USPTO). *See Aptix Corp. v. Quickturn Design Sys., Inc.*, No. C98-00762 WHA, 2000 U.S. Dist. LEXIS 8408, at *87-*95 (N.D. Cal. Jun. 14, 2000) (declaring patent in suit unenforceable based on inventor/CEO’s fabrication of invention date evidence after commencement of infringement suit).

257. *B. Braun Med. Inc. v. Abbott Labs.*, 124 F.3d 1419, 1427 (Fed. Cir. 1997).

258. *Windsurfing Int’l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1001-02 (Fed. Cir. 1986).

259. *See USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505, 510 (7th Cir. 1982) (asserting that such a vague formulation, if “taken seriously . . . would put all patent rights at hazard”).

260. *Id.*

261. *See generally* 6 CHISUM, *supra* note 71, § 19.04[3] (“Acts of Misuse”). Although the majority of patent misuse cases have examined a patentee’s licensing practices, the misuse defense has also been raised in a case involving restrictions placed by the patent owner on the conditions of post-sale use of its patented device. *See Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 709 (Fed. Cir. 1992) (reversing grant of summary judgment of unenforceability based on patent misuse and remanding for determination of whether post-sale restriction was valid under applicable sales law and within scope of patent grant).

262. *Windsurfing*, 782 F.2d at 1001 (quoting *Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found.*, 402 U.S. 313, 343 (1971)).

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Supreme Court refused to enforce the patent in suit where the patent owner had conditioned the grant of licenses to use its patented salt tablet deposition machines upon the licensees' purchase of unpatented salt tablets from the patent owner.²⁶³ The Court held that it was "unnecessary to decide whether [Suppiger] violated the Clayton Act" because allowing Suppiger to maintain its present patent infringement suit was "contrary to public policy."²⁶⁴ The Court, however, did not hold the misused patent permanently unenforceable, because misuse can be "purged" by alleviating a challenged condition.²⁶⁵

Notably, the defendant/accused infringer in *Morton Salt* was not itself a victim of the misuse, because it was not a licensee.²⁶⁶ In the Court's view, the true victim of the misuse was the public at large. The Court refused to enforce the patent on public policy grounds:

[T]he public policy which includes inventions within the granted monopoly excludes from it all that is not embraced in the invention. It equally forbids the use of the patent to secure an exclusive right or limited monopoly not granted by the Patent Office and which it is contrary to public policy to grant.²⁶⁷

Thus, since *Morton Salt*, an accused infringer asserting a patent misuse defense is not required to show that it was personally harmed by the misuse.²⁶⁸ This liberal notion of "standing" to assert the patent misuse defense, justified on public policy grounds, supports the proposition that a patent misuse defense should be potentially available to any entity denied a license to practice a patent on an industry standard, regardless of that entity's prior interactions with the patentee. In contrast with contract-based defenses such as equitable estoppel and implied license, the patent

263. 314 U.S. 488, 489-90, 494 (1942).

264. *Id.* at 494; *see also* Calkins, *supra* note 162, at 183 (concluding that "*Morton Salt* reinforced the Court's earlier rulings that the misuse defense was grounded on public policy underlying the patent laws and was not limited to a violation of the antitrust laws as suggested by the court of appeals").

265. *Id.* at 493. The Court stated that:

[e]quity may rightly withhold its assistance from . . . [a misuse] of the patent by declining to entertain a suit for infringement, and should do so at least until it is made to appear that the improper practice has been abandoned and that the consequences of the misuse of the patent have been dissipated."

Id.; *see generally* 6 CHISUM, *supra* note 71, § 19.04[4] ("Purging and Dissipation of Misuse").

266. *Morton Salt*, 314 U.S. at 490-91, 494.

267. *Id.* at 492.

268. 6 CHISUM, *supra* note 71, § 19.04[5].

misuse defense should not be limited to only those standards users who actually participated with the patentee in the standards-setting negotiations and detrimentally relied on the patentee's nondisclosure of its patent holdings.²⁶⁹

2. *The Section 271(d) Exceptions to Patent Misuse*

As detailed below, the 1988 Patent Misuse Reform Act limitations on patent misuse focused on the problematic intersection of that doctrine and the doctrine of contributory infringement.²⁷⁰ An assertion of contributory infringement challenges a defendant's supply of one or more components that make up less than the entirety of the claimed invention.²⁷¹ The related patent misuse concern is that through such assertions, the patentee is attempting to expand the scope of its statutorily-granted exclusionary right by restraining competition in these components, which are generally non-patented items.²⁷² Examining the history of the patent misuse limitations or safe harbors of section 271(d) demonstrates that they have developed primarily as a counterweight to contributory infringement; that development did not contemplate the current conflict between industry standards and patent rights.

After the Supreme Court's 1944 *Mercoid* decisions,²⁷³ some courts viewed the very act of bringing a lawsuit that alleged contributory in-

269. *But see* Mark A. Lemley, *The Economic Irrationality of the Patent Misuse Doctrine*, 78 CALIF. L. REV. 1599, 1618-19 (1990) (criticizing patent misuse doctrine in part because availability of patent misuse remedy (in effect, a royalty-free compulsory license) for parties not actually harmed by the misuse contravenes goals of patent system because it "unnecessarily rewards (and therefore encourages) infringement").

270. The doctrine of contributory patent infringement, statutorily codified at 35 U.S.C. § 271(c) in the 1952 Patent Act, originated in judicial decisions such as *Wallace v. Holmes*, 29 F. Cas. 74 (C.C. Conn. 1871) (No. 17,100). Under a theory of joint tortfeasance, the *Wallace* court held liable for infringement the defendant supplier of a burner which, when combined by consumers with a chimney, resulted in direct infringement of the plaintiff's patent on the overall lamp device comprising burner and chimney. *See id.* at 79-80; *see also* Tom Arnold & Louis Riley, *Contributory Infringement and Patent Misuse: The Enactment of § 271 and Its Subsequent Amendments*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 357, 365 (1994) (discussing the view of some courts that after *Mercoid* "the mere act of bringing a contributory infringement action was patent misuse").

271. *See* 35 U.S.C. § 271(c) (1994) (defining contributory infringement).

272. *See* Dawson Chem. Co. v. Rohm and Haas Co., 448 U.S. 176, 197 (1980) (noting that "an inevitable concomitant of the right to enjoin another from contributory infringement is the capacity to suppress competition in an unpatented article of commerce").

273. *See generally* *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661 (1944) (holding that patent owner had misused patent by asserting contributory infringement

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fringement as an act of patent misuse.²⁷⁴ In response to concerns that patent misuse was eradicating contributory infringement, Congress enacted in the 1952 Patent Act section 271(d), which specified certain exceptions or safe harbors to patent misuse.²⁷⁵ The statutory provision did not purport to define patent misuse, but rather set forth three specific acts which, if the patentee were otherwise entitled to relief for direct or contributory infringement, would not be considered misuse.²⁷⁶

Attorney (later Judge) Giles S. Rich and others successfully lobbied for the inclusion of the section 271(d) safe harbor provisions as a necessary counterbalance to the contributory infringement provision that had been contemporaneously enacted as section 271(c). In view of the Supreme Court's *Mercoid* decisions and the lower courts' reaction thereto, Rich and his colleagues contended that having a contributory infringement provision in the statute was meaningless without a counterpart provision making clear that the assertion of contributory infringement by a patent owner under limited conditions involving a defendant's supply of a non-staple article²⁷⁷ should not be regarded as patent misuse.²⁷⁸ Congressulti-

against accused supplier of unpatented combustion stoker switch, even though switch had no use other than in patented combination); *Mercoid Corp. v. Minneapolis-Honeywell Regulator Co.*, 320 U.S. 680 (1944) (companion case).

274. See Arnold and Riley, *supra* note 270, at 365 (citing *Stroco Prods., Inc. v. Mullenbach*, 67 U.S.P.Q. (BNA) 168, 171 (S.D. Cal. 1944)).

275. 35 U.S.C. § 271(d)(1)-(3) (1994).

276. The three patent misuse safe harbors included in the 1952 Patent Act, for which “[n]o patent owner otherwise entitled to relief for infringement or contributory infringement of a patent shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having done one or more of the following,” were that the patentee had:

- (1) derived revenue from acts which if performed by another without his consent would constitute contributory infringement of the patent;
- (2) licensed or authorized another to perform acts which if performed without his consent would constitute contributory infringement of the patent; and
- (3) sought to enforce his patent rights against infringement or contributory infringement.

Act of July 19, 1952, ch. 950, §§ 1, 66 Stat. 811 (codified at 35 U.S.C. § 271(d)(1)-(3) (1952)).

277. See *Dawson Chem. Co.*, 448 U.S. at 200. The Court explained that:

Section 271(c) identifies the basic dividing line between contributory infringement and patent misuse. It adopts a restrictive definition of contributory infringement that distinguishes between staple and nonstaple articles of commerce. It also defines the class of nonstaple items narrowly. In essence, this provision places materials like the dry ice of the *Carbice* case outside the scope of the contributory infringement doctrine.

mately agreed, enacting sections 271(d) (1)-(3) as part of the 1952 Patent Act.²⁷⁹

The Supreme Court did not have occasion to scrutinize the patent misuse safe harbors of section 271(d) until 1980.²⁸⁰ In *Dawson Chemical Co. v. Rohm and Haas Co.*,²⁸¹ the Court considered the propriety of a patent owner's refusal to license the defendant and other producers of the non-staple but unpatented chemical propanil²⁸² to perform a patented process for applying propanil to inhibit the growth of weeds in rice crops. The Court also scrutinized the patent owner's practice of tying the grant to rice farmers of implied licenses for use of the patented method based on the farmers' purchase of propanil from the patentee, rather than from its competitors who also manufactured the un-patented propanil.²⁸³ The defendant conceded that its sales of propanil with instructions for use amounted to contributory infringement of the method patent, but asserted the affirmative defense of patent misuse.²⁸⁴ The defendant argued that the patentee's acts of tying and refusal to license went well outside the three then-existing patent misuse safe harbors of section 271(d), and that by virtue of those acts the patentee was excluded from the category of patentees "otherwise entitled to relief" under the prefatory language of section 271(d).²⁸⁵

By a 5-4 vote, the *Dawson* majority rejected the defendant's assertion of misuse, concluding that the patentee's acts were "not dissimilar in either nature or effect from the [safe harbor] conduct that is clearly embraced within section 271(d)."²⁸⁶ With respect to the refusal to license, the majority provided little analysis except to note that the patentee "does not license others to sell propanil, but nothing on the face of the statute requires it to do so."²⁸⁷ The majority's opinion ultimately focused much

Id.

278. See generally Arnold & Riley, *supra* note 270, at 366-70.

279. See *Dawson Chem. Co.*, 448 U.S. at 235 (White, J., dissenting) (stating that "the impetus for enactment of § 271 was this Court's decisions in the *Mercoid* cases").

280. *Id.* at 215-20 (demonstrating that Court's patent infringement decisions following passage of 1952 Act did not require it to address the patent misuse provisions of 35 U.S.C. § 271(d)).

281. 448 U.S. 176 (1980).

282. *Id.* at 181-82.

283. *Id.* at 183, 186.

284. *Id.* at 186.

285. *Id.* at 187.

286. *Id.* at 202, 223.

287. *Id.* at 202 (emphasis in original). The dissent criticized this analysis as simplistic, pointing out that:

Section 271(d) does not define conduct that constitutes patent misuse; rather it simply outlines certain conduct that is not patent misuse. Be-

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greater attention on the patentee's act of tying than its refusal to license its competitors. The tying was held acceptable because the tied product, propanil, was a nonstaple good, one that had "no use except through practice of the patented method."²⁸⁸ In the majority's view, "the provisions of § 271(d) effectively confer upon the patentee, as a lawful adjunct of his patent rights, a limited power to exclude others from competition in non-staple goods."²⁸⁹

In 1988, Congress codified the holdings of *Dawson* by adding new subsections (4) and (5) to the three then-existing patent misuse safe harbors of 35 U.S.C. § 271(d).²⁹⁰ Of particular interest in the industry standards context is subsection (4), which provides that when "otherwise entitled to relief for infringement or contributory infringement of a patent," a patent owner shall not be deemed guilty of patent misuse by reason of his having "refused to license or use any rights to the patent . . .".²⁹¹ Read literally, this broad safe harbor would appear to permit the owner of a patent on standards technology to refuse to license any competitor who must practice the patent in order to conform with the pertinent industry standard. For the reasons set forth below, I contend that section 271(d)(4) should not be read so broadly as to prevent courts from applying the patent misuse doctrine in appropriate cases of standards capture through patenting.

The legislative history directly pertinent to the enactment of section 271(d)(4) is extremely limited²⁹² and indicates only that the provision

cause the terms of the statute are terms of exception, the absence of any express mention of a licensing requirement does not indicate that respondent's refusal to license others is protected by § 271(d).

Id. at 234 (White, J., dissenting).

288. *Id.* at 199.

289. *Id.* at 201.

290. Act of Nov. 19, 1988, Title II, Pub. No. 100-703, § 201, 102 Stat. 4674; *see also* Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 914 n.347 (1990) (describing legislation as "built on" *Dawson*). For a detailed description of the passage of the Act, see Calkins, *supra* note 162, at 192-200.

291. 35 U.S.C. § 271(d)(4) (1994).

292. The entirety of the pertinent legislative history for 35 U.S.C. § 271(d)(4) is found at 134 CONG. REC. 32295 (Oct. 20, 1988):

The underlying complaint about current law with respect to patent misuse is that it was developed to address allegedly anticompetitive effects of patent licensing arrangements. To address this problem the Senate-passed bill [S. 1200] requires that the court find a violation of the antitrust laws, after undertaking an economic analysis, before it can find a patent holder guilty of misuse.

was intended to codify existing case law.²⁹³ Oddly, the legislative history does not mention the Supreme Court's *Dawson* decision—clearly the most pertinent authority—but rather relies chiefly on the Ninth Circuit's decision in *SCM Corp. v. Xerox Corp.*²⁹⁴ There, the appellate court upheld Xerox's refusal to license its portfolio of plain-paper copying patents under the antitrust laws, but did not discuss whether that conduct constituted patent misuse.²⁹⁵

The only other authority cited in the legislative history of section 271(d)(4), the Supreme Court's 1908 decision in *Continental Paper Bag Co. v. Eastern Paper Bag Co.*,²⁹⁶ likewise fails to support the creation of a wholesale shield from patent misuse for refusals to license, regardless of the context. The *Continental Paper Bag* Court rejected an accused infringer's argument that a court of equity could not enjoin infringement of a patent on a machine for making paper bags when the patent had never been practiced because the nonmanufacturing patent owner refused to license it.²⁹⁷ Excluding competitors from the use of a patented invention

The proposal before the House today [H.R. 4972] does not adopt such a sweeping and inflexible view. Instead the bill before us proceeds on the basis of consensus about two categories of misuse that the Committee on the Judiciary concluded should not be the subject of a rigid *per se* rule.

The two subject matters affected by the proposed amendment are “refusal to use or license” a patented invention and the tying of a patented product to another separate product. Codification of the “refusal to use or license” as not constituting patent misuse is consistent with the current caselaw and makes sense as a matter of public policy.⁴ [Footnote 4:] See *SCM Corp. v. Xerox*, 645 F.2d 1195 (2d Cir. 1981); see generally *Cont'l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 426-430 (1908).

(statement by Rep. Kastenmeier, concurring in Senate amendment to H.R. 4972, Patent and Trademark Office Authorization).

293. See Calkins, *supra* note 162, at 197 (contending that “[b]ecause little controversy exists over the right of a patent owner to refuse to use a patent or to license others, the codification adds little to existing law”).

294. 645 F.2d 1195 (2d Cir. 1981).

295. See *SCM Corp.*, 645 F.2d at 1197 (holding that Xerox's acquisition of and subsequent refusal to license a portfolio of patents directed to plain-paper copying did not support a claim for monetary relief under either Section 1 or Section 2 of the Sherman Act, 15 U.S.C. §§ 1, 2 (1976), coupled with Section 7 of the Clayton Act, 15 U.S.C. § 18 (1976)). In support of its decision, the Ninth Circuit noted that “[n]o court has ever held that the antitrust laws require a patent holder to forfeit the exclusionary power inherent in his patent the instant his patent monopoly affords him monopoly power over a relevant product market.” *Id.* at 1204.

296. 210 U.S. 405 (1908).

297. *Id.* at 422-30.

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“may be said to have been of the very essence of the right conferred by the patent,”²⁹⁸ the Court opined, emphasizing that unlike many foreign countries, the U.S. had never (with one minor exception for aliens) imposed working requirements on patent owners.²⁹⁹ The Court also rejected the accused infringer’s contention that the nature of the patent owner’s nonuse was “unreasonable or that the rights of the public were involved,”³⁰⁰ pointing to evidence that the nonuse was simply a matter of economic savings for the patentee and that there was “no question of a diminished supply or of increase in prices.”³⁰¹ Notably, however, the Court left open the possibility that injunctive relief against infringement might be withheld in a different case involving a truly unreasonable refusal to license that harmed the public’s welfare: “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.”³⁰²

Some scholars have suggested that the enactment of section 271(d)(4) as a safe harbor for refusals to license precludes any assertion of a patent misuse defense in the standards capture context.³⁰³ The patent misuse defense should not be so circumscribed. The section 271(d)(4) legislative history’s reliance on *Continental Paper Bag*, coupled with that section’s prefatory qualifying language of “otherwise entitled to relief,” suggests that a patent misuse defense can still be raised in cases of truly unreasonable refusals to license that harm the public’s welfare.³⁰⁴ Refusal to license a standards patent that the patentee intentionally kept secret while partici-

298. *Id.* at 429.

299. *Id.*

300. *Id.*

301. *Id.*

302. *Id.* at 430. The Ninth Circuit relied on this language in its 1945 *Vitamin Technologists* decision, refusing to enjoin infringement of a patent that the Wisconsin Alumni Research Foundation (WARF) was unwilling to license to increase the vitamin D content of margarine, a treatment for the disease of rickets. *See Vitamin Technologists, Inc. v. Wis. Alumni Research Found.*, 146 F.2d 941, 946 (9th Cir. 1945) (quoting *Continental Paper Bag*, 210 U.S. at 430).

303. *See, e.g.*, Lemley, *supra* note 27, at 1061 n.69. Lemley notes:

One might interpret the patent misuse doctrine as a rule compelling interoperability [of IP law and industry standards] in limited circumstances. The problem with this approach is that Congress appears to have foreclosed it in 1988, when it passed the Patent Misuse Reform Act. That Act added 35 U.S.C. § 271(d)(4), which provides that refusal to license a patent does not constitute patent misuse.

Id.

304. *Cf. Cont’l Paper Bag v. E. Paper Bag*, 210 U.S. 405, 430 (1908).

pating in the standards-setting deliberations represents such a case. The sensitivity of the patent misuse doctrine to the public policy concerns alluded to in *Continental Paper Bag*, which look beyond the marketplace impact-focus of antitrust analysis, makes the misuse doctrine a viable and important tool to remedy abusive standards capture by patent owners.

3. *CSU v. Xerox*

Only a few reported appellate decisions following *Dawson* have addressed section 271(d)(4) and whether an outright refusal to license is patent misuse, and these have not concerned patents on industry-promulgated standards. Nevertheless, they are pertinent for illustrating how courts have improperly conflated patent misuse and antitrust analysis.

In the recent *CSU v. Xerox* litigation,³⁰⁵ the Federal Circuit summarily rejected an accused infringer's assertion that a patent owner's refusal to license or sell its patented products constituted patent misuse. CSU, an independent service organization for photocopiers, sued Xerox for violation of the antitrust laws based on Xerox's refusal to sell its Xerox-patented replacement parts. CSU also alleged patent misuse as well as antitrust violation.³⁰⁶ The district court granted Xerox summary judgment, and the Federal Circuit affirmed,³⁰⁷ concluding that:

[i]n the absence of any indication of illegal tying, fraud in the Patent and Trademark Office, or sham litigation, the patent holder may enforce the statutory right to exclude others from making, using, or selling the claimed invention free from liability under the antitrust laws. We therefore will not inquire into his subjective motivation for exerting his statutory rights, even though his refusal to sell or license his patented invention may have an anticompetitive effect, so long as that anticompetitive effect is not illegally extended beyond the statutory patent grant.³⁰⁸

We answer the threshold question of whether Xerox's refusal to sell its patented parts exceeds the scope of the patent grant in the negative.² [Footnote 2: Having concluded that Xerox's actions fell within the statutory patent grant, we need not separately con-

305. CSU, L.L.C. v. Xerox Corp. (*In re Ind. Serv. Orgs. Antitrust Litig.*), 203 F.3d 1322, 1324 (Fed. Cir. 2000).

306. *In re Ind. Serv. Orgs. Antitrust Litig.*, 989 F. Supp. 1131, 1132 (D. Kan. 1997) (addressing “the legal issue of whether Xerox's unilateral refusal to license or sell its patented and copyrighted products may constitute a misuse defense to an infringement claim or unlawful exclusionary conduct under the antitrust laws”).

307. *CSU*, 203 F.3d at 1324.

308. *Id.* at 1327-28.

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sider CSU’s allegations of patent misuse and they are rejected.] Therefore, our inquiry is at an end. . . .³⁰⁹

Regrettably, the Federal Circuit in *CSU* provided no analytical measure by which to determine the key patent misuse inquiry of when an anti-competitive effect “illegally extend[s] beyond the statutory patent grant.”³¹⁰ The court summarily concluded that Xerox had not misused its patent, because it found no antitrust violation.³¹¹ Its conclusion that Xerox’s acts did not “extend beyond” the scope of Xerox’s patent grant was dispositive of both the antitrust³¹² and patent misuse³¹³ defenses. The Federal Circuit treated the patent misuse claim as subsumed within the antitrust finding. By conflating the two doctrines, the court’s approach ig-

309. *Id.* at 1328.

310. *Id.* at 1328.

311. *Id.* at 1328 n.2. The Federal Circuit in *CSU* did cite the patent misuse safe harbor for refusals to license under 35 U.S.C. § 271(d)(4), but only in the context of discussing whether Xerox had violated the antitrust laws. *Id.* at 1326. The *CSU* court’s treatment of patent misuse as essentially subsumed in the resolution of the defendants’ antitrust allegations reflects the overlap between the two areas of law and the analytical difficulties created thereby. Commentators have vigorously debated whether the continued existence of the patent misuse doctrine is justified in view of remedies available for similar conduct under the antitrust laws. See Calkins, *supra* note 162, at 187 (contending that patent misuse doctrine and antitrust laws are grounded on different underlying policy bases, and objecting to rejection of patent misuse defense in favor of antitrust-only framework because “[r]equiring extensive market analysis and expert testimony to prove nothing more than a simple misuse defense will unquestionably impair the public policy encompassed in the patent laws as pronounced by the Supreme Court for over seventy years”); Lemley, *supra* note 269, at 1628 (characterizing as “untenable” Professor Merges’ position that differences between patent misuse doctrine and antitrust laws justify the continued existence of patent misuse doctrine) (citing Merges, *supra* note 162, at 797); Merges, *supra* note 162, at 793 (arguing that patent misuse doctrine facilitates patent law’s goal of limiting patent claims to legal and equitable boundaries of patent owner’s invention, by punishing activities that may not have “anticompetitive” affect in the antitrust law sense); Note, *Is the Patent Misuse Doctrine Obsolete?*, 110 HARV. L. REV. 1922 (1997) (contending that patent misuse doctrine retains vitality, at least as applied by Federal Circuit in *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700 (Fed. Cir. 1992)).

312. *CSU*, 203 F.3d at 1327-28 (citing in discussion of antitrust counterclaim the court’s earlier decision in *Glass Equip. Dev., Inc. v. Besten, Inc.*, 174 F.3d 1337, 1344 (Fed. Cir. 1999) (affirming dismissal of Besten’s antitrust counterclaim “where Besten’s counterclaim was grounded only on GED’s attempts to enforce its right to exclude others from practicing the methods claimed in its ‘582 patent’”).

313. See *Windsurfing Int’l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1001 (Fed. Cir. 1986) (defining patent misuse as acts that “impermissibly broaden[] the ‘physical or temporal scope’ of the patent grant with anticompetitive effect”) (quoting *Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found.*, 402 U.S. 313, 343 (1971)).

nores the fundamental policy differences between patent misuse and antitrust.³¹⁴

Former Chairman Robert Pitofsky of the Federal Trade Commission sharply criticized the Federal Circuit's decision in *CSU v. Xerox*, asserting that the decision was “[a] striking example of an approach that gives undue weight to intellectual property rights.”³¹⁵ In Chairman Pitofsky’s view, the Federal Circuit unjustifiably:

leapt from the undeniable premise that an intellectual property holder does not have to license anyone in the first instance to the unjustifiable conclusions that it can select among licensees or can condition a license to achieve an anticompetitive effect. . . . That approach . . . allow[s] intellectual property holders to extend their market power beyond the scope of the intellectual property right itself and sacrific[es] more competition than is necessary to provide appropriate incentives to innovate.³¹⁶

Chairman Pitofsky’s comments support the position that the section 271(d)(4) safe harbor for refusals to license should not be interpreted so broadly as to exempt any such refusals from patent misuse scrutiny, no matter what the context or how anticompetitive the impact.³¹⁷ In a November 2001 address to the American Bar Association, Chairman Pitofsky’s successor, FTC Chairman Timothy J. Muris, echoed Pitofsky’s concerns when he noted that the *CSU* decision continues to provoke debate on whether any limits should be placed on a patent owner’s right to refuse to deal.³¹⁸ Muris went so far as to explicitly pose the question whether section 271(d)(4) should “be changed or reinterpreted to reflect competition considerations.”³¹⁹

314. See *supra* note 253 and accompanying text.

315. Pitofsky, *supra* note 38, at 545.

316. *Id.* at 546.

317. See *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1215 n.7 (9th Cir. 1997) (disagreeing with suggestion that 1988 amendment of 35 U.S.C. § 271(d) to add sub-section (4) “may even herald the prohibition of all antitrust claims . . . premised on a refusal to license a patent,” (quoting *Data Gen. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1187 (1st Cir. 1994), citing *Calkins*, *supra* note 162, at 192-97), because in Ninth Circuit’s view “the amended statutory language does not compel this result” and “§ 271(d)(4) merely codified existing law”).

318. See Timothy J. Muris, *Competition and Intellectual Property Policy: The Way Ahead*, presented to the American Bar Association’s Antitrust Section Fall Forum, Washington, D.C. (Nov. 15, 2001), at 5, available at <http://www.ftc.gov/speeches/muris/intellectual.htm>.

319. *Id.*

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Moreover, the prefatory “otherwise entitled to relief” qualifier of section 271(d) indicates that Congress envisioned newly-arising factual scenarios where a patentee should be excluded from the section’s protections for public policy reasons not envisioned at the time of passage of the 1952 Patent Act. The problem of standards capture by refusal to license a non-disclosed standards technology patent presents exactly this type of newly-arising scenario. The sensitivity of the patent misuse doctrine to these public policy concerns permits courts to consider whether a patentee’s refusal to license a patent on standards technology extends the anti-competitive effect of the refusal beyond the statutory patent grant and propels the refusal into the realm of actionable patent misuse.³²⁰

VI. CONCLUSION

When government mandates a technology standard, particularly a standard pertaining to public health and safety, any entity holding patent rights in the subject matter of the standard should be required to license all users at reasonable commercial terms. If the patent owner fails to meet this requirement, the government should consider the exercise of eminent domain over the patent.

In the case of a technology standard promulgated by industry, the key inquiry should be whether the patentee disclosed the existence of its patent or patent application to the standards-setting body while that body had an opportunity to select an alternate, nonproprietary standard. Where the patentee failed to disclose a patent but that failure was not intentional, and the standard ultimately adopted by industry requires use of the subject matter of the patent, compulsory licensing at reasonable commercial terms should be imposed if the patent owner refuses to license all users of the standard. If the patentee’s nondisclosure of its intellectual property rights to the standards-setting body was intentional, however, courts should refuse to enforce the patent altogether under the patent misuse doctrine, thus depriving the patentee of any remedy, injunctive or monetary, for use of the patented invention.

320. Alternatively, Congress could amend the § 271(d) patent misuse exceptions to make clear that those protections would not extend so far as to shield patent misuse based on standards capture that involves the intentional nondisclosure of patent rights to a standards-setting body.