

The DMCA's Anti-Device Provisions: Impeding the Progress of the Useful Arts?

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I. INTRODUCTION

In 1998, the U.S. Congress enacted the Digital Millennium Copyright Act (DMCA).¹ The DMCA extensively revised the U.S. copyright law in a manner not seen since the Copyright Act of 1976.² Commentators have written a great deal about the DMCA, particularly its broad anti-circumvention provisions, embodied in 17 U.S.C. § 1201.³ Much of the commentary on these provisions is critical,⁴ largely because these provisions have the effect, with some important exceptions,⁵ of greatly limiting access to and usage of works protected by “technological measures.”⁶ This effect occurs

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1. Digital Millennium Copyright Act of 1998, Pub. L. No. 105-304, 112 Stat. 2860 (enacted H.R. 2281 (1998)).

2. See Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900-2000*, 88 CAL. L. REV. 2189, 2201 (2000) (asserting that the “DMCA enacted sweeping changes in copyright law”); David Nimmer, *Puzzles of the Digital Millennium Copyright Act*, 46 J. COPYRIGHT SOC'Y U.S. 401, 402 (1999) (discussing the significance of the DMCA revisions to the 1976 Copyright Act compared to prior revisions).

3. See 17 U.S.C. § 1201 (2001).

4. See, e.g., Merges, *supra* note 2, at 2201 (noting that copyright scholars “argue that the rushed, industry-backed DMCA is very deeply flawed”); Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to be Revised*, 14 BERKELEY TECH. L.J. 519 (1999); Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354 (1999); Julie E. Cohen, *Some Reflections on Copyright Management Systems and Laws Designed to Protect Them*, 12 BERKELEY TECH. L.J. 161 (1997).

5. See 17 U.S.C. § 1201(c)-(j) (2000).

6. A “technological measure” is a device that allows providers of digital information to engage in self-help by regulating access to the information. See Mark Stefik, *Shifting the*

regardless of whether these works are in the public domain or subject to copyright protection. In fact, the anti-circumvention provisions aim to prevent activity far beyond that which would constitute copyright infringement.⁷

This Article raises two points about the anti-circumvention provisions. First, these provisions seem inconsistent with the culture of intellectual property. In the world of proprietary boundaries and public domains, there is something special about access to protected works and the use of limits to avoid infringement, whether we are talking about fairly using copyrighted works or designing-around patented technology. Indeed, cultural enrichment and technological advancement are achieved by fairly using artistic expression and building upon technical knowledge. The focus of this Article is on the access and use of artistic expression in patent law.⁸

Second, the anti-circumvention provisions of the DMCA, which aim to protect digital expression by erecting technological fences, have both an expressive and a technical component. These provisions are meant to prevent unauthorized access to and usage of expressive content by prohibiting: (1) access *per se* to works protected by technological measures, and (2) the manufacture and trafficking of devices primarily designed to circumvent technological restrictions. Thus, patent law, as well as copyright law, addressed this issue of circumvention-enabling technology. Circumvention-enabling technology, such as software, comprises patentable subject matter, and, resultantly, raises questions about the effect of the anti-circumvention provisions on patent law's constitutional mission to promote the progress of the useful arts. In particular, assuming patent

Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing, 12 BERKLEY TECH. L.J. 137 (1997) (examining "trusted systems" as technological measures); Dan L. Burk, *Muddy Rules for Cyberspace*, 21 CARDOZO L. REV. 121, 168 (1999) (discussing "copyright management systems as a way to deter unauthorized use of digital works"); Benkler, *supra* note 4, at 414 n.234 (discussing "technological protection measures").

7. See David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673, 686 (2000) (noting that the "gravamen [of the anti-circumvention provisions] is not copyright infringement"); Samuelson, *supra* note 4, at 521 (asserting that the "DMCA went far beyond treaty requirements in broadly outlawing acts of circumvention of access controls and technologies that have circumvention-enabling uses").

8. Note, however, that while there is indeed a culture of access and use in patent law, in certain circumstances, patent law access and use are overly circumscribed.

protection is important to the manufacturers of circumvention-enabling technology, one must consider the effect that the anti-device provisions have on the research and development decisions of these manufacturers and, more generally, to patent law's delicate incentive dynamic. Although the answer to this dilemma is beyond the scope of this Article, this issue is something that scholars should pursue further.

II. THE DMCA'S ANTI-CIRCUMVENTION PROVISIONS

Much of the controversy surrounding the DMCA results from its three anti-circumvention provisions. First, there is a basic ban on the act of circumvention itself.⁹ The second anti-circumvention provision, like the first, relates to access, but prohibits the manufacture or trafficking of devices "primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title."¹⁰ The third provision is also an "anti-device" provision, but unlike the first and second provisions, it pertains to an activity unrelated to access. It prohibits the manufacture or trafficking of devices "primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof."¹¹

Further analysis is essential in making sense of these provisions. The first and second provisions should be read together because they both focus on access to a protected work. The first provision is a ban on the act of obtaining access through circumvention itself; whereas the second provision proscribes one who assists in obtaining access by the making or trafficking of anti-circumvention devices or technology.¹²

9. 17 U.S.C. § 1201 (a)(1)(A) (2000).

10. 17 U.S.C. § 1201 (a)(2); *see also* § 1201(a)(3)(A) (stating that "to 'circumvent a technological measure' means to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner").

11. 17 U.S.C. § 1201 (b)(1)(A).

12. The committee report describes these two provisions as follows:

The third provision, embodied in § 1201(b)(1), is also an anti-device provision, but it assumes the authorized access of protected works.¹³ This provision is concerned with usage, or what one does with protected works.¹⁴ It is important to note that if one makes an unauthorized copy or distribution of a protected work, of which there is authorized access, the DMCA itself is not violated;¹⁵ rather, § 106 of the copyright code comes into play. The anti-device provision of § 1201(b)(1) is only concerned with one who *assists* the copier in making the copy (or, for example, other activity that violates section § 106 of the Copyright Code), by providing the technology to carry out the illicit copying.¹⁶ The reason there is not a complimentary access ban under § 1201(b)(1)—as there is under § 1201(a)(1)(A) in relation to § 1201(a)(2)—is that “prior to the [DMCA], the conduct of circumvention was never before made unlawful.”¹⁷ The reasoning for this omission was that the “copyright law has long forbidden copyright infringements, so no new prohibition was necessary.”¹⁸

[I]f unauthorized access to a copyrighted work is effectively prevented through use of a password, it would be a violation of this section to defeat or bypass the password and to make the means to do so, as long as the primary purpose of the means was to perform this kind of act. This is roughly analogous to making it illegal to break into a house using a tool, the primary purpose of which is to break into houses.

Id.; S. REP. NO. 105-190, at 11 (1998).

13. 17 U.S.C. § 1201(b)(1)(C).

14. *Id.*

15. See Nimmer, *supra* note 7, at 689 (“A person who engages in prohibited *usage* of a work to which he has lawful access does not fall afoul of any provision of section 1201.”) (emphasis in original).

16. *Id.* at 689-90.

17. S. REP. NO. 105-190, at 12 (1998).

18. *Id.* Two anti-device provisions, § 1201(a)(2) and § 1201(b), require additional focus because these provisions bring patent law into the mix. Section 1201(a)(2) provides that:

No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or

(C) is marketed by that person or another acting in concert with that person with that person’s knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title.

The anti-device provisions are the most important of the prohibitions because “[a]lthough it will not always be necessary for a legitimate circumventor to make or use circumvention technology to accomplish a privileged circumvention, most often this will be necessary.”¹⁹ Therefore, given the practical necessity of circumvention technology to enable one to make a fair use of a work, one would think that there would not be a ban on this type of circumvention technology because such a ban would seemingly render dubious the utility of DMCA exemptions such as fair use. Despite this reasoning, it is too soon to reach such a conclusion.²⁰

The DMCA, therefore, is a general ban on circumvention to achieve access without regard to the existence of infringement.²¹

17 U.S.C. § 1201(a)(2).

Section 1201(b)(1) provides that:

No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that —

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof;

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof; or

(C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof.

17 U.S.C. § 1201(b)(1).

19. See Benkler, *supra* note 4, at 416.

(“From a practical perspective, the prohibition on manufacture, importation, or sale of circumvention devices . . . is the more important of the two prohibitions . . . [because] [e]ven if a few savvy users can circumvent without relying on the products or services of others, the vast majority of users will have to rely on such products or services.”)

Id. (citations omitted); Samuelson, *supra* note 4, at 554 (“It is, of course, an irony that so much of Congressional debate on section 1201 focused on refining the act-of-circumvention provision given that the anti-device provision are, as a practical matter, by far the more important rules in this section.”).

20. See Merges, *supra* note 2, at 2203 (“Put starkly, the question is whether a circumvention technology deployed to accomplish a privileged use would still run afoul of the DMCA.”); Samuelson, *supra* note 4, at 547 (“The deepest puzzle of section 1201 is whether Congress implicitly intended to allow the development and/or distribution of technologies necessary to accomplish legitimate circumvention activities, or whether, in essence, it created a number of meaningless privileges.”).

21. See Nimmer, *supra* note 7, at 686 (“Note that the gravamen [of § 1201(a)] is not

There also exists two anti-device bans—one that focuses on technology that facilitates unauthorized access to a work protected by a technological measure, and another that is concerned with technologies that assist one in making use (e.g., copying, distributing, etc.) of a technologically protected work where there is authorized access, but in a way that *may* violate the copyright code (i.e., no fair use). Because these provisions focus on technology and not actions or intent, a question remains as to the applicability of these provisions to a technology that can be used for both legitimate and illegitimate purposes.

III. ANTI-CIRCUMVENTION DOCTRINE IN A CULTURE OF ACCESS AND PROGRESS

The policies underlying the anti-circumvention provisions are not entirely unreasonable. Although, there is a need to encourage investment in secure systems to induce disclosure of information in the digital environment²² and aim to enforce copyright laws. Accomplishing this goal without a trusted system is, however, quite difficult, if not futile.²³ Given the “arms race” between anti-

copyright infringement.”). To understand the full breadth of § 1201(a)(1)(A) and (B), consider the following. In the nondigital world, one can walk down to a law school library and ask one of the librarians to make a copy of an article, for private study, without much concern that the copyright laws will be invoked. *See* 17 U.S.C. § 108(d)(1). Consider if one day, all of the copyright holders who have works housed within the library decided to surround the entire library with a ten foot barbed wire fence and said that anyone who climbs over this fence or makes a ladder designed to facilitate their attempt to climb over this fence, to access protected material in this library (even if such copying is legal), will be subject to civil or criminal penalties access provisions seek to accomplish just this scenario. *See* H.R. REP. NO. 105-551, at 17 (1998) (“The act of circumventing a technological protection measure put in place by a copyright owner to control access to a copyrighted work is the electronic equivalent of breaking into a locked room in order to obtain a copy of a book.”); S. REP. NO. 105-90, at 11 (1998).

22. Even those who expressed reservations about the sweep of the DMCA agreed that its goal of protecting digital content was worthwhile. *See* *WIPO Copyright Treatises Implementation Act; and Online Copyright Liability Limitation Act: Hearing on H.R. 2281 and H.R. 2280 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary*, 105th Cong. 250-51 (1997) [hereinafter *Judiciary Hearing*] (statement of Chris Byrne, Chairman of Intellectual Property Committee, Information Technology Industry Council) (stating that the Information Technology Industry Council “applauds” the Administration’s efforts to “protect copyrighted works in the digital environment”).

23. MARK STEFIK, *THE INTERNET EDGE* 58 (2000) (asserting that “without trusted systems, digital technology actually increases the publisher’s risk by practically eliminating the infringer’s costs of copying and distribution” resulting in publishers “withhold[ing] their

circumvention and circumvention technology and the increasingly costly quest to build better and more secure systems,²⁴ there may have been a perceived need for a legal basis for preventing circumvention, irrespective of the existence of infringement. Perhaps legislators thought that this legal basis would result in a reduction of the costs associated with developing anti-circumvention systems.

As is often the case with intellectual property, every benefit has a corresponding cost. Here, there are two potential costs that may result from the anti-circumvention provisions. First, as many commentators discussed, society suffers due to the enclosure of works in the public domain or copyrighted works that cannot be used fairly, even if access is authorized.²⁵ In this regard, the pendulum swings too far in the direction of publishers.²⁶

In addition, there are potential costs for companies that manufacture devices capable of circumventing technological measures, regardless of whether the device can be used for legitimate

valuable works from the Net"); *see also* Stefik, *supra* 6, at 137 (discussing trusted systems).

24. *See* STEFIK, *supra* note 23, at 62 ("The interplay between 'attacks' and 'countermeasures' makes the term *arms race* an appropriate metaphor for the design of trusted systems.") (emphasis in original); *see also* Universal City Studios, Inc. v. Reimerdes, 111 F. Supp.2d 294, 315 (2000) (asserting that the availability of defendants' decryption technology requires the plaintiff film studios to "either tolerate increased piracy or to expend resources to develop and implement a replacement [encryption] system").

25. This cost is above and beyond the ordinary cost associated with intellectual property systems. To promote creative expression and innovation, we tolerate a reduction in access. Our patience, however, runs short if we are prohibited from using a protected work fairly (e.g., for educational or scholarly purposes) or from using a work that has entered the public domain.

26. *See, e.g.*, Cohen, *supra* note 4, at 178 (asserting that if hacking around "technological barriers" is not permitted, "the mere act of encoding a work within [copyright management systems] would magically confer upon vendors greater rights against the general public than copyright allows"); Mark Stefik, *Opening Remarks*, in LIFE, LIBERTY, AND . . . THE PURSUIT OF COPYRIGHT 2 (Sept. 1998), available at <http://www.theatlantic.com/unbound/forum/copyright/stefik1.htm> ("One corner of the debate on trusted systems concerns whether they shift the balance of control excessively in favor of publisher, potentially removing or eliminating other kinds of so-called "fair use" currently supported by copyright law."); Lawrence Lessig, *Round One: Open Remarks*, in LIFE, LIBERTY, AND . . . THE PURSUIT OF COPYRIGHT 2 (Sept. 1998), available at <http://www.theatlantic.com/unbound/forum/copyright/lessig1.htm>. Lessig asserts

that the development of trusted systems "will, through software, give copyright holders perfect control over their stuff. Far more efficiently and far more completely than law, this code will give copyright holders the power to control access and use, the power to disable fair uses, and the ability to keep control of their material for much longer than the statutory life.

Id.

purposes.²⁷ These provisions banning circumvention technology, particularly if broadly construed, may upset the delicate incentive dynamic built-in to our patent system. Patent law seeks to strike a balance between the promotion of technological innovation and the dissemination of its fruits. In exchange for a proprietary interest, patent law requires the patentee to give the public notice of the metes and bounds of the claimed invention and to publicly disseminate information concerning the patented subject matter. This dual proprietary/notice function provides, on the one hand, an inducement to invent and invest in the patented technology. On the other hand, it allows third parties to avoid conduct that would infringe the patent, while providing the interested public with information that enlarges the storehouse of knowledge, and enables others to improve upon or design around the patented technology—thus leading to further technological progress.

Patent law's ex post innovation theories are a good example of the importance of access and technological growth. So, before I explore further the potential disincentives associated with the anti-device provisions, it may be helpful to discuss these ex post innovation theories.

Copyright law has the doctrine of fair use, which has largely been justified in terms of insurmountable transaction costs resulting in market failure.²⁸ This doctrine permits a third party to use a protected work fairly (i.e., without a finding of infringement), whether it be for educational, scholarly, journalistic, or other worthy use.²⁹

Patent law does not have a fair use doctrine,³⁰ but it does

27. For example, to access a work in the public domain or use a protected work fairly (i.e., fair use under 17 U.S.C. § 107 (2000)). In fact, there are concerns even if access is authorized. See Samuelson, *supra* note 4, at 548 (asserting that while § 1201 sets forth several exceptions to the anti-circumvention rule where circumvention technology is needed (e.g., encryption research), there is “no provision enabling the development or distribution of circumvention tools to enable fair use or other privileged uses in terrain which § 1201(a)(1)(A) does not reach (i.e., making fair uses of lawfully acquired copies”).

28. See Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors*, 82 COLUM. L. REV. 1600 (1982). But see Robert P. Merges, *The End of Friction? Property Rights and Contract in the “Newtonian” World of On-Line Commerce*, 12 HIGH TECH. L.J. 115, 129-35 (1997) (discussing fair use in the context of digital networks and the “likelihood of market formation”).

29. 17 U.S.C. § 107 (2000).

30. Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L.

emphasize the importance of access and use. The importance of access and use are apparent when considering patent law's improvement and design-around theory. These ex post innovation theories tend to ensure technological advancement. To realize advancement, access to, and use of protected technology is essential.

A. Improvement Theory

One of the fundamental policies of patent law is to “promote[] disclosure of inventions” so as “to stimulate further innovation.”³¹ Building upon preexisting knowledge is central to efficient technological advancement.³² As Edmund Kitch writes, “each innovation generates shifts in the matrix of technological possibilities, and the realization of the possibilities may have a significance that dwarfs the original invention considered alone.”³³

When we speak of “improvement patents,” however, we must keep in mind one of the basic tenets of patent law: one may obtain a patent on a particular invention, yet still infringe an extant patent. Consider the following example:

Inventor 1 patents a widget comprised of elements A, B, and C. Inventor 2 improves upon Inventor 1's invention by adding D, thus giving Inventor 2 a patent on a widget comprised of elements A, B, C, and D (assume D is a nonobvious addition to A, B, and C). Although patented Inventor 2's invention contains each and every element (A, B, and C) claimed in Inventor 1's patent [therefore, even though he has a patent, Inventor 2 cannot practice his invention because it would

REV. 1177 (2000) (arguing for a fair use doctrine in patent law).

31. *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262 (1979).

32. See RICHARD R. NELSON & SIDNEY G. WINTER, AN EVOLUTIONARY THEORY OF ECONOMIC CHANGE 130 (1982); Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990); Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29, 30-31 (1991). But see James E. Bessen & Eric S. Maskin, *Sequential Innovation, Patents, and Imitation* (unpublished manuscript, on file with author) (arguing that in industries where innovation is both sequential and complementary, such as the software and semiconductor industries, patent protection may reduce overall innovation and social welfare).

33. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 271 (1977).

infringe Inventor 1's patent]. On the other hand, Inventor 1 cannot practice Inventor 2's invention without the permission of the latter³⁴

What we have in this situation is known in patent law as "blocking patents"; a situation that is largely influenced by market forces. At least three things can happen in this situation: (1) the parties cross-license each other, a particularly attractive choice if the improvement adds significant value to the original patent;³⁵ (2) the parties sell the patents to a third party who will coordinate future development and improvement; or (3) the parties fail to come together for whatever reason (e.g., high transaction costs) and neither party (or society) enjoys the improvement.³⁶

The point to be made here is that the improver has bargaining power in the form of a *patented* invention that was largely realized by access to (or use of) that upon which the patentee built. There is a significant difference between being an infringer with a patent and an infringer without a patent. Without a patent, not only will the

34. See DONALD S. CHISUM ET AL., *PRINCIPLES OF PATENT LAW* 5 n.6 (2d ed. 2001).

35. See *Standard Oil Co. (Ind.) v. United States*, 283 U.S. 163, 171 n.5 (1931). Referring to cross-licensing, the court stated:

[t]his is often the case where patents covering improvements of a basic process, owned by one manufacturer, are granted to another. A patent may be rendered quite useless, or "blocked," by another unexpired patent which covers a vitally related feature of the manufacturing process. Unless some agreement can be reached, the parties are hampered and exposed to litigation. And, frequently, the cost of litigation to a patentee is greater than the value of a patent for a minor improvement.

Id.

36. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1067 n.350 (1997).

While it might seem irrational to think that an original inventor would suppress an improvement within her control if it truly was valuable, several circumstances might induce her to do so. If the improvement requires a new manufacturing technology or a different market approach, there may be substantial fixed costs associated with switching over production from the old to the new way. The further removed the improvement is from the original invention, the worse this problem is likely to be The alternative to switching over production facilities . . . is also unlikely to be attractive to the original inventor. Even if the licensor could extract the full value of the improvement in a licensing transaction, which seems unlikely, its market control will disappear along with the intellectual property right.

Id. For a general discussion of blocking patents, see Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75 (1994).

improver infringe the extant patent, but he will also be unable to preclude others from using his unpatented improvement. On the other hand, a patent, while not allowing the improver to escape infringement, will arm the improver with bargaining power because he is now able to preclude others, including the owner of the infringed patent, from making, using, or selling the improver's invention.

Let us take a step back and look at the improvement process. There are times when the written description of a patent (accessible to anyone with a computer) will suggest to an improver a particular idea or experiment that will not infringe the patent. Here, access is quite easy, because as all the improver needs is the patent document itself; he will then proceed with his experimentation without the need to negotiate a license with the original patent owner. However, in addition to the patent document, the improver must often make use of the patented invention in his research, in which case the improver will either have to purchase the patented product on the open market, which conveys an implied license to use the product,³⁷ or obtain a license *ex ante* from the patent holder to use the patented technology. Although it is anything but a forgone conclusion that the patent holder will agree to grant the improver a license, especially if the improver poses a commercial threat to the patent holder, or the transaction costs are otherwise prohibitively high,³⁸ the framework exists for a would-be improver to make use of the patented technology through either a market purchase or a licensing arrangement.

37. See *United States v. Univis Lens Co.*, 316 U.S. 241, 249 (1942).

38. See Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1072-74 (1989).

The risk that the parties will be unable to agree on terms for a license is greatest when subsequent researchers want to use prior inventions to make further progress in the same field in competition with the patent holder, especially if the research threatens to render the patented invention technologically obsolete;

Id. See also JOHN W. SCHLICHER, LICENSING INTELLECTUAL PROPERTY 47, 96 (1996) ("The primary transaction costs are 1. The information costs of identifying buyers and sellers, and informing buyers of the rights for sale, and 2. The costs of negotiating agreements, performing under them, and detecting and stopping violations."). *But see* Frank H. Easterbrook, *Cyberspace versus Property Law?*, 4 TEX. REV. L. & POL. 103, 111 (1999) (asserting that technology is reducing the cost of bargaining).

Licensing negotiations will no doubt continue to break down and the risks associated with improvement activity will continue to become, in some instances, too great. In these situations, the would-be improver may channel his inventive energies elsewhere.³⁹ One alternative is for the improver to design-around the patented invention in an attempt to avoid infringement.

B. Design-Around Theory

Faced with high transaction costs associated with licensing on the one hand and litigation on the other, the competitor may opt to “design around” the patented technology.⁴⁰ As the name “design around” suggests, a competitor of the patentee may purposefully circumvent the boundaries of the patent claim and create a competitive non-infringing alternative to the claimed invention. The practice of designing-around extant patents creates viable substitutes and advances resulting in competition among patented technologies.⁴¹

39. This option is not say the improver may not proceed in his experimentation without a license, particularly if the improver was confident he could patent the improvement and thus position himself at the bargaining table with the original patentee. *See* Eisenberg, *supra* note 38, at 1044 (“Some subsequent researchers might find it worthwhile to improve a patented invention even without a license if the improvement itself were patentable.”).

40. A recent example of a company deciding to design around patented technology because the patent holder refused to issue a license is the work-around efforts of Bristol Myers and Athersys. Bristol Myers has over fifty proteins related to cancer that they were unable to research and develop because the patent owners of the genes that coded for the proteins would not grant a license to Bristol Myers or demanded an “unreasonable royalty rate.” Andrew Pollock, *Bristol Meyers and Athersys Makes Deal on Gene Patents*, N.Y. TIMES, Jan. 8, 2001, at C2.

41. Several economists and courts asserted that a patent grant does not necessarily translate into monopolistic market power. *See* HERBERT HOVENKAMP, ECONOMIC AND FEDERAL ANTITRUST LAW 156, 219 (1985) (“[A] patented article . . . may compete intensely with similar products which are either unpatented or covered by different patents. . . . More often than not the patent . . . makes a product ‘distinguishable’ but confers little or no measurable market power upon its owner.”); F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 446 (2d ed. 1980) (“[F]ew patents are sufficiently basic and broad to ‘fence in’ a field altogether.”); *see also* Jefferson Parish Hosp. v. Hyde, 466 U.S. 2 (1984) (O’Connor, J., concurring). In rejecting the majority’s presumption that a patent or copyright leads to market power, the court stated,

A common misperception has been that a patent or copyright . . . suffices to demonstrate market power. While this factor may help to give market power to the seller, it is also possible that a seller in these situations will have no market power, for example, a patent holder has no market power in any relevant sense if there are close

The public clearly benefits from such activity.⁴² As the Federal Circuit recently stated, “[o]ne of the benefits of a patent system is its so-called ‘negative incentive’ to ‘design around’ a competitor’s products, even when they are patented, thus bringing a steady flow of innovations to the marketplace.”⁴³

Access to the patent document is quite easy for both the improver and design-around competitor because patents are publically available. Unlike the improver, who frequently needs to make actual use of the patented technology, the competitor, desiring to engage in design-around activity, needs only the patent document. This distinction is because the competitor focuses on the patent claims. Nonetheless, access and use are very much built into the fabric of patent law. The same cannot be said for the DMCA anti-circumvention provisions; in fact, quite the opposite is true. What if an individual wants access to or to make use of a work for parodic purposes or scholarly reasons? What if the individual wants access to or use of a work that is not protected by copyright?

substitutes for the patented product.

Id. at 37 n.7; *see also* *Abbott Lab. v. Brennan*, 952 F.2d 1346, 1354 (Fed. Cir. 1991) (noting that “[a] patent does not of itself establish a presumption of market power in the antitrust sense”); *Chiuminatta Concrete Concepts, Inc. v. Target Prod., Inc.*, 1992 WL 465720 (C.D. Cal. 1992), *aff’d mem.*, 19 F.3d 41 (Fed. Cir. 1994). Of course, there are occasions where a patent, particularly a pharmaceutical patent, in and of itself confers monopolistic market power.

42. *See* *Slimfold Mfg. Co., Inc. v. Kinkead Indus., Inc.*, 932 F.2d 1453, 1457 (Fed. Cir. 1991) (“Designing around patents is . . . one of the ways in which the patent system works to the advantage of the public in promoting progress in the useful arts, its constitutional purpose.”).

43. *State Indus., Inc. v. A. O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985); *see also* *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520 (Fed. Cir. 1995).

The ability of the public successfully to design around—to use the patent disclosure to design a product or process that does not infringe, but like the claimed invention, is an improvement over the prior art—is one of the important public benefits that justify awarding the patent owner exclusive rights to his invention.

Id.; *In re Alappat*, 33 F.3d 1526, 1553 (Fed. Cir. 1994) (“Even after a patent has been awarded for a new, useful, and nonobvious practical application of an idea, others may learn from the underlying ideas, theories, and principles to legitimately ‘design around’ the patentee’s useful application.”); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991) (“[D]esigning or inventing around patents to make new invention is encouraged”); *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 277 (Fed. Cir. 1985). *But see* SCHERER, *supra* note 41, at 386-87 (arguing that resources used in designing-around patents could be put to better use); Donald F. Turner, *The Patent System and Competitive Policy*, 44 N.Y.U. L. REV. 450, 455 (1969).

C. *The Anti-Device Provisions as a Disincentive*

Although the DMCA spells out several circumvention exceptions,⁴⁴ it is unclear whether or not they are mere paper exceptions or legitimate exceptions. Moreover, it is uncertain whether a “device” capable of circumventing a technological measure will render the manufacturer of that device liable under the DMCA.

In a post-DMCA case, *Universal City Studios, Inc. v. Reimerdes*,⁴⁵ eight motion picture studios sued “computer hackers” who designed a computer program called DeCSS. The movie studios distribute motion pictures on digital versatile disks (DVDs). The motion pictures are protected from copying by use of encryption technology named CSS, which allows the films to be viewed only on DVD players and computer drives equipped with licensed decryption technology. This technology does not permit the user to copy the motion picture.

The defendants’ DeCSS program has the ability to circumvent CSS and permits a person that does not have the necessary licensed decryption technology to play and copy the CSS protected motion pictures. Defendants posted their DeCSS technology on their Web site, thus making it readily available to the public. The DeCSS clearly circumvented technology because it allowed for the decrypting of an encrypted work that was protected by a technological measure. One needed a licensed DVD player to access a CSS protected movie.

The defendants in *Universal* argued that their DeCSS technology permitted third parties to make a fair use of the protected work.⁴⁶ The court recognized that the defendants “focused on a significant point,”⁴⁷ but ultimately concluded that “[i]f Congress had meant the fair use defense to apply to such actions, it would have said so.”⁴⁸ According to the court, the defendants were not being sued for copyright infringement; rather, they were being sued under the access control provisions of the DMCA, and “as the legislative history

44. 17 U.S.C. § 1201 (c)-(j) (2000).

45. 111 F. Supp.2d 294 (S.D.N.Y. 2000).

46. *Id.* at 321-23.

47. *Id.* at 322 (“Access control measures such as CSS do involve some risk of preventing lawful as well as unlawful uses of copyrighted material.”).

48. *Id.*

demonstrates, the decision not to make fair use a defense to a claim under § 1201(a) was quite deliberate.”⁴⁹

The fair use defense is apparently no defense at all in the face of the access control provisions of § 1201(a). Therefore, manufacturers have cause for concern regarding technology that can be used to simply obtain *access* to a work that is protected by a technological measure, even if the work is in the public domain or can be used “fairly.”

Can one argue that the defendant provides a service to the many who do not have the technical skills, such as the comedian or the professor of film?⁵⁰ The *Universal* court offered the following answer: “the fact that Congress elected to leave technologically unsophisticated persons who wish to make fair use of encrypted copyrighted works without the technical means of doing so is a matter for Congress”⁵¹

49. *Id.* The *Universal* court declared that:

Congress . . . recognized the contention, voiced by a range of constituencies concerned with the legislation, that technological controls on access to copyrighted works might erode fair use by preventing access even for uses that would be deemed “fair”.

The first element of the balance was the careful limitation of Section 1201(a)(1)’s prohibition of the act of circumvention to the act itself so as not to “apply to subsequent actions of a person once he or she has obtained authorized access to a copy of a [copyrighted] work” By doing so, Congress left “the traditional defenses to copyright infringement, including fair use, . . . fully applicable” provided “the access is authorized.”

Id. at 322-23 (citations omitted). It appears Professor Samuelson took this position, arguing that “[c]ourts should distinguish between circumvention aimed at getting unauthorized access to a work and circumvention aimed at making noninfringing uses of a lawfully obtained copy.” Samuelson, *supra* note 4, at 539. She also notes that, fair use “would provide a poor excuse for breaking into a computer system in order to get access to a work one wished to parody.” *Id.* at 539-40. *But see* Cohen, *supra* note 4, at 178. Cohen states:

Copyright owners cannot be prohibited from making access to their works more difficult, but they should not be allowed to prevent others from hacking around their technological barriers. Otherwise, the mere act of encoding a work within [copyright management systems] could magically confer upon vendors greater rights against the general public than copyright allows.

Id.

50. Professor Sameulson, noted in an article published prior to the *Universal* decision, “It is unclear whether Congress intended for the technologically savvy who could ‘do it themselves’ to be the only ones who could engage in privileged acts of circumvention.” Samuelson, *supra* note 4, at 551.

51. *Universal Studios, Inc. v. Reimerdes*, 111 F. Supp.2d at 324.

What about the argument that a fair reading of the legislative history of the DMCA would lead one to conclude that the proscribed technology is limited to “black boxes,” and not software?⁵² The *Universal* court’s reading of the legislative history is not so narrow. The court states, “In their Post-Trial Brief, defendants argue that ‘at least some of the members of Congress’ understood § 1201 to be limited to conventional devices, specifically ‘black boxes,’ as opposed to computer code. However, the statute is clear that it prohibits ‘any technology,’ not simply black boxes. 17 U.S.C. § 1201(a)(2)”⁵³

Assume that instead of a hacker, Company X manufactures DeCSS. In this scenario a comedian decides to use DeCSS technology to access or copy a scene from the movie on a single CD-ROM for parodic purposes or a professor of film decides to copy of few scenes for classroom purposes, or sought merely to access a work in the public domain. Does Company X violate the DMCA? The answer to this question is unclear, even though DeCSS allows for improper copying as well as what would traditionally be considered a fair use or simply access to public domain information. This ambiguity may very well lead to the filing of frivolous lawsuits against small, but innovative corporations. By focusing on circumvention technology instead of infringing activity,⁵⁴ the anti-

52. This question presents an entirely plausible argument. See *Section-by-Section Analysis of H.R. 2281*, 105th Cong. 9 (1998) (stating that anti-device provision of § 1201(a)(2) “is carefully drafted to target ‘black boxes’ and to ensure that legitimate multipurpose devices can continue to be made and sold”); REPORT OF THE HOUSE COMM. ON COMMERCE, H.R. REP. NO. 105-551, at 38 (Sept. 1997) (“The Committee believes it is very important to emphasize that (a)(2) is aimed fundamentally at outlawing so-called ‘black boxes’ that are expressly intended to facilitate circumvention of technological protection measures for purposes of gaining access to a work.”).

53. *Universal Studies, Inc.*, 111 F. Supp.2d at 317 n.135 (emphasis in original).

54. See Judiciary Hearing, *supra* note 22, at 252 (Byrne statement urging the committee to focus their attention on behavior and intent, not technology); see also Jonathan Band and Taro Issihiki, *The New Anti-Circumvention Provisions in the Copyright Act: A Flawed First Step*, 3 No. 11 CYBER. LAW. 2 (1999) (asserting that the Administration should have regulated “just conduct” because “[v]irtually any technology can be used for good or evil”). Unlike the anti-device provisions, the U.S. Supreme Court, in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984), distinguished between technology itself and use of that technology. Borrowing from patent law, the Court stated that there can be no contributory infringement if a device has substantial non-infringing uses. *Id.* at 440-42. To hold otherwise ““would block the wheels of commerce.”” *Id.* at 441.

device provisions are inconsistent with patent law's constitutional command to promote the progress of the useful arts and may adversely affect patent law's incentive dynamic.⁵⁵ The predominant justification for American intellectual property law is grounded in utilitarianism. The patent and copyright clause of the Constitution itself, "[t]o promote the progress of Science and useful Art," sets forth a utilitarian charge.⁵⁶ In contrast, the Lockean labor-theory posits that property rights are pre-societal and inherent. The utilitarian justification is a matter of positive law concerned with end results and public welfare lending to their view that intellectual property is a means to achieve a "socially optimal output of intellectual products."⁵⁷

Moreover, these provisions, particularly if read broadly, as in *Universal*, may have the effect of upsetting patent law's incentive dynamic. Testimony before Congress reflected this concern.

55. See, e.g., Cohen, *supra* note 4, at 178 (asserting that if hacking around "technological barriers" is not permitted, "the mere act of encoding a work within CMS would magically confer upon vendors greater rights against the general public than copyright allows").

56. U.S. CONST. art. I, § 8, cl. 8. The framers, employing colonial syntax, as one would expect, were referring respectively to works of authors and inventors when they used the terms "Science" and "useful Arts." In the eighteenth century, the term "Science," from the Latin, *scire*, "to know," meant learning or knowledge in general and had no particular connection to the physical or biological sciences like it does today. Thus, the operational relationships are between "authors," "science," and "writings" for copyright on the one hand and "inventors," "useful Arts," and "discoveries" for patents on the other. See Giles S. Rich, *Principles of Patentability*, in NONOBVIOUSNESS—THE ULTIMATE CONDITION OF PATENTABILITY 2:1 (John F. Witherspoon ed., 1980) (1978); Karl B. Lutz, *Patents and Science: A Clarification of the Patent Clause of the U.S. Constitution*, 18 GEO. WASH. L. REV. 50 (1949). See generally Kenneth J. Burchfield, *Revisiting the "Original" Patent Clause: Pseudohistory in Constitutional Construction*, 2 HARV. J.L. & TECH. 155 (1989).

57. Edwin C. Hettinger, *Justifying Intellectual Property*, 18 PHIL. & PUB. AFF. 31, 48 (1989). Hettinger notes:

If competitors could simply copy books, movies, and records, and take one another's inventions and business techniques, there would be no incentive to spend the vast amounts of time, energy, and money necessary to develop these products and techniques. . . . To avoid this disastrous result, the [utilitarian] argument claims, we must continue to grant intellectual property rights.

Notice that this argument focuses on the users of intellectual products, rather than on the producers. Granting property rights to producers is here seen as necessary to ensure that enough intellectual products . . . are available to users. The grant of property rights to producers is a mere means to an end.

Id.

According to the then Chairman of the Intellectual Property Committee for the Information Technology Industry:

A statutory scheme that creates liability based on the mere possibility that someone, somewhere, might misuse a product, service, or technology will have a direct and undesirable effect on the IT industry's enthusiasm and ability to innovate. Companies will hesitate to develop new ideas, new technologies, or new implementations if they have to be concerned that someone could potentially use them to circumvent a copy protection system. This will significantly slow time to market in an industry where the ability to move quickly is essential to survival.⁵⁸

This testimony reflects the goal of American intellectual property "to promote the *progress* of the science and the useful Arts."⁵⁹

IV. CONCLUSION

At best, there is uncertainty in the DMCA's anti-circumvention provisions. Uncertainty and proprietary interests are not well-suited for each other. Circumvention technology, whether used for privileged or unprivileged uses under § 1201 is clearly patentable, making the concern here not for the individual hacker (as we witnessed in *Universal*) who is grounded in a libertarian, "information is free" philosophy;⁶⁰ these individuals are certainly not going to avail themselves of the patent law. Rather, the concern is for

58. Judiciary Hearing, *supra* note 22, at 252 (Byrne statement); *see also* Judiciary Hearing, *supra* note 22, at 257 (Statement of Edward J. Black) (asserting that the legislation "should be amended to address actions, not devices, and to impose penalties for copyright infringement, and not for noninfringing circumvention by itself").

59. *See supra* note 56.

60. *See, e.g.*, John Perry Barlow, *Opening Remarks, in* LIFE, LIBERTY, AND . . . THE PURSUIT OF COPYRIGHT 2 (Sept. 1998), *available at* <http://www.theatlantic.com/unbound/forum/copyright/barlow1.htm>.

Cyberspace is an environment of Mind, and spirit may travel within it without objects—real, virtual, or legal. The more each of us puts into it, freely and unencumbered, the more we will get back. Let us fertilize this new garden with our thoughts. Collectively, we will grow fruits that no one of us could imagine.

Id.

corporate entities who manufacture and traffic technology that can be used to engage in legitimate or illegitimate circumvention activity. We must keep in mind that we are not necessarily talking about technology that is used to infringe a copyright (although it may); the technology of circumvention permits one to access a work that may or may not be protected under the copyright law and make use of the work in a potentially fair way. Will these corporations continue to invest the same amount of resources in this technology that they did prior to the enactment of the DMCA?

