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ANTITRUST LAW AND PATENT MISCONDUCT IN THE
PROPRIETARY DRUG INDUSTRY

MICHAEL A. SANZO*

THIS Article examines the operation of antitrust law in an industry dominated by patented products, the proprietary pharmaceutical industry. Section I examines four categories of patent misconduct addressed by antitrust law: (1) the acquisition of patents by fraud, sometimes termed "patent abuse," (2) illegal "tying arrangements" in which a patent holder extends his monopoly by coupling the sale of a patented invention to the purchase of unpatented goods; (3) anticompetitive restrictions in patent licenses; and (4) improper patent acquisitions and cross-licensing agreements. In each category, a specific example is presented. Sections II and III of this Article discuss the limitations of antitrust law and suggest alternative ways in which the law can be used to promote competition between proprietary drug products.

I. ANTITRUST LAW AS A DETERRENT TO PATENT MISCONDUCT

A. The Acquisition of Patents by Fraud

Patents are state sanctioned monopolies granted to "promote the Progress of Science and the useful Arts." Inventors who have

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1. For a discussion and examples of "patent abuse" as a defense to a claim of patent infringement, see infra notes 5-38 and accompanying text.

2. For a detailed explanation of the elements of a tying arrangement as well as some illustrative examples, see infra notes 39-84 and accompanying text.

3. For an analysis of the elements establishing the validity of license restrictions, see infra notes 85-122 and accompanying text.

4. For a discussion of the various patent/license combinations and their consequences, see infra notes 123-44 and accompanying text.

5. The word "monopoly" as used in this context means exclusivity. It should be distinguished from "monopoly" as used in the antitrust context which means, in essence, market power.

6. U.S. CONST. art. I, § 8, cl. 8. In its entirety, Article I, § 8, clause 8 states: "To promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Id. "Patent" is defined as "[a] grant of some privilege, property, or authority, made by the government or sovereign of a country to one or more
acquired and maintained patents in good faith are immune from antitrust laws. Antitrust immunity is lost, however, when a patent is procured by fraud or when a patentee attempts to enforce a patent that he or she knows to be invalid.

In *Walker Process Equipment, Inc. v. Food Machinery & Chemical Corp.*, the United States Supreme Court held that patent holders are subject to antitrust claims under section 2 of the Sherman Act.

individuals . . . . A grant of right to exclude others from making, using or selling one's invention and includes right to license others to make, use or sell it.” BLACK'S LAW DICTIONARY 1125 (6th ed. 1990) (citation omitted).

7. See, e.g., *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965). *Walker Process* dealt with alleged patent fraud. *Id.* at 173. Food Machinery had sued Walker Process for infringement of a patent on a particular piece of sewage treatment equipment. *Id.* Food Machinery subsequently filed a motion to dismiss the suit due to the expiration of the patent. *Id.* Walker Process, who originally denied any wrongdoing, counterclaimed, alleging that Food Machinery had obtained the patent by knowingly and willfully misrepresenting facts to the Patent Office. *Id.* Specifically, Walker Process alleged that Food machinery failed to reveal that its invention had been available to the United States public for more than one year before it filed for a patent. *Id.* The Court held that, if true, such conduct stripped Food Machinery of its immunity from antitrust laws. *Id.* at 177. Because the lower courts had granted the motion for dismissal, the Supreme Court remanded the case to provide Walker Process with the opportunity to substantiate its claim of fraud. *Id.* at 178.

8. See, e.g., *Handgards, Inc. v. Ethicon Inc.*, 743 F.2d 1282 (9th Cir. 1984), cert. denied, 469 U.S. 1190 (1985). *Handgards* involved a patent for plastic gloves. *Id.* at 1285. In 1962, Ethicon filed an infringement suit against two predecessor companies of Handgards. *Id.* In 1968, the trial court found for Handgards, declaring invalid one of the two patents involved. *Id.* The suit for infringement of the second patent had been dropped prior to the trial court's ruling. *Id.* This verdict notwithstanding, in 1968 Handgards filed an antitrust action against Ethicon. *Id.* One of the theories of Handgards' suit was that Ethicon pursued its 1962 patent infringement case in bad faith. *Id.* During the trial, Handgards provided evidence that Ethicon had fabricated invention dates, that the invention was available for public use more than one year prior to the filing of Ethicon's patent application, and that Ethicon pursued the infringement litigation despite knowledge that such public use invalidates a patent. *Id.* The United States Court of Appeals for the Ninth Circuit affirmed the district court's finding of bad faith, stating that "Ethicon's antitrust liability is premised upon its prosecution of a patent infringement suit with the knowledge that its patent was invalid." *Id.* at 1289. For further discussion of the ways a patent holder can lose antitrust immunity, see ROBERT H. BORK, THE ANTITRUST PARADOX, 352-55 (1978).


Every 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, and on conviction thereof, shall be punished by fine not exceeding $10,000,000 if a corporation, or if any other person, $350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

*Id.*
or section 4 of the Clayton Act if two conditions are met:

(1) the relevant patent is shown to have been procured by knowing and willful fraud practiced by the defendant on the Patent Office or, if the defendant was not the original patent applicant, he had been enforcing the patent with knowledge of the fraudulent manner in which it was obtained; and
(2) all the elements otherwise necessary to establish a § 2 monopolization charge are proved.

To prevail in a Walker Process type claim, a plaintiff must show that the defendant acted in bad faith in procuring or enforcing a patent. Bad faith in procurement may take the form not only of deliberate misrepresentation but also in a failure to disclose to the Patent Office material information of which the applicant knew or should have known. A plaintiff alleging that a defendant failed to

   (a) Amount of recovery; prejudgment interest
   Except as provided in subsection (b) of this section, any person who shall be injured by reason of anything forbidden in the antitrust laws may sue therefor in any district court of the United States in the district in which the defendant resides or is found or has an agent, without respect to the amount in controversy, and shall recover threefold the damages by him [or her] sustained, and the cost of the suit, including a reasonable attorney's fee . . . .

13. See Cataphote Corp. v. DeSoto Chem. Coatings Inc., 450 F.2d 769, 772 (9th Cir. 1971) (holding that in Walker Process type claim, "[g]ood faith is a complete defense"), cert. denied, 408 U.S. 929 (1972). Bad faith, however, implies an intent to mislead. In Cataphote, the Ninth Circuit stated: "The road to the Patent Office is so tortuous and patent litigation is usually so complex, that 'knowing and willful fraud' as the term is used in Walker, can mean no less than clear, convincing proof of intentional fraud involving affirmative dishonesty . . . ." Id.; see also Conceptual Eng'g Assocs., Inc. v. Aelectronic Bonding, Inc., 714 F. Supp. 1262, 1266-67 (D.R.I. 1989) (reiterating that not only must patents be procured and maintained in good faith, but also that suits for patent infringement must be brought in good faith).
14. See Cataphote, 450 F.2d at 772 ("Wholly inadvertent errors or honest mistakes which are caused by neither fraudulent intent or design, nor by the patentee's gross negligence, do not constitute fraud under Walker."). Although inequitable conduct usually takes the form of misrepresentations or omissions in acquiring a patent, it may take other forms as well. For example, the United States Court of Appeals for the Seventh Circuit found a defendant violated the Sherman Act by employing the patent examiner, who had reviewed the defendant's original patent application, to assist in prosecuting a reissue application on the same patent. Kearney & Trecker Corp. v. Giddings & Lewis, Inc., 452 F.2d 579, 585-89 (7th Cir. 1971), cert. denied, 405 U.S. 1066 (1972). In Kearney, T. Emmert Beall was the Primary Examiner of the Division receiving the original application for a patent on Kearney's Brainard Machine. Id. at 585. Beall was involved in various capacities
disclose material information must “offer clear and convincing proof of: (1) prior art or information that is material; (2) knowledge chargeable to applicant of that prior art or information and of its materiality; and (3) failure of the applicant to disclose the art or information resulting from an intent to mislead the [Patent and Trademark Office].”  

A distinction must be drawn between inequitable conduct that is sufficient to result in a patent being held invalid and inequita-

with this particular patent throughout the approval process, including signing actions from the Patent Office, interviewing Kearney representatives and considering amendments to the application. *Id.* at 585-86. Beall retired shortly after he signed the formal approval notice for the Brainard patent. *Id.* at 586. Less than two months after his retirement from the Patent Office, Beall entered into a consulting services contract with Kearney. *Id.* Throughout his employment, Beall advised and worked with Kearney representatives in their claims for reissue applications on original patents, including the Brainard patent. *Id.* The potential conflict was uncovered by Kearney’s attorney during the discovery phase of Kearney’s suit against Giddings & Lewis for patent infringement. *Id.* at 589. Kearney took corrective actions upon this discovery, including limiting their patent infringement suit against Giddings & Lewis and terminating Beall’s employment. *Id.* at 589-90. Nevertheless, the court found Kearney guilty of “deceptive intention” and Beall’s actions “indefensible.” *Id.* at 594, 597. Accordingly, the court held that Kearney violated the Sherman Act through deceptive procurement and maintenance of the Brainard patent. *Id.* at 599.

15. FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1415 (Fed. Cir. 1987). *FMC* demonstrates the varying claims and counterclaims possible in patent litigation. FMC filed a suit seeking a declaratory judgment that its product did not infringe on a Manitowoc owned patent and also that the Manitowoc patent was invalid. *Id.* at 1412. Manitowoc subsequently filed an infringement suit against FMC who counterclaimed with a suit alleging violation of the Sherman Act. *Id.* The court found that Manitowoc believed in good faith that its infringement suit was not frivolous. *Id.* at 1414. With respect to FMC’s claim of material non-disclosure, the court found that Manitowoc representatives provided the Patent and Trademark Office with all of the information they believed to be material, and that no improprieties occurred with respect to prior use of the product. *Id.* at 1416. The court held that FMC failed to meet its burden of establishing inequitable conduct and, therefore, no violation of antitrust law was found. *Id.* at 1418. Typically, charges of fraud or patent misuse are made by defendants as counterclaims in patent infringement actions. Courts have recognized that inventors who act in good faith in acquiring patents should not be discouraged from enforcing their rights due to a fear of antitrust sanctions. This recognition has produced the clear and convincing evidence standard. See Handgards, Inc. v. Ethicon Inc., 601 F.2d 986, 996 (9th Cir. 1979) (requiring “clear and convincing” standard in order to “provide reasonable protection for the honest patentee who brings an infringement action”), cert. denied, 444 U.S. 1025 (1980); Conceptual Eng’g, 714 F. Supp. at 1266 (same).

16. Inequitable conduct offered as a defense in patent infringement cases can be established by showing that the defendant made either intentional misrepresentations or omissions of material information to the Patent Office. Smithkline Diagnostics v. Helena Lab. Corp., 859 F.2d 878, 891 (Fed. Cir. 1988). In this context, “material information” is defined as any information which a patent examiner would reasonably considered as important in evaluating a claim. See Precision Instrument Mfg. v. Automotive Maintenance Mach. Co., 324 U.S. 806, 818 (1945) (indicating that public interest requires all relevant facts be submitted to Patent Office); Argus Chem. Corp. v. Fibre Glass-Evercoat Co., 759 F.2d 10, 14-15 (Fed.
ble conduct that will support an antitrust claim. In the latter case, a party asserting a claim under section 2 of the Sherman Act must, among other things, identify the market affected by the alleged antitrust violation\(^\text{17}\) and show a specific intent on the part of the defendant to monopolize that market.\(^\text{18}\) No monopolization occurs under section 2 unless a defendant has market power.\(^\text{19}\) Moreover, no attempt to monopolize occurs absent a "dangerous probability" that the defendant will succeed in his or her attempt.\(^\text{20}\) Finally, the

\(^{17}\) Walker Process Equip. Inc. v. Food Machinery & Chem. Corp., 382 U.S. 172, 177 (1965). The relevant market is the area of effective competition. Brown Shoe Co. v. United States, 370 U.S. 294, 328 (1962). The Brown Shoe Court stated that "only a further examination of the particular market—its structure, history and probable future—can provide the appropriate setting for judging the probable anticompetitive effect of the merger." Id. at 322.

\(^{18}\) Conceptual Eng'g Assocs., Inc. v. Aelectronic Bonding, Inc., 714 F. Supp. 1262, 1266 (D.R.I. 1989). Intent must be shown to establish that the conduct in question is "predatory" or "anti-competitive." Id. at 1268. To monopolize a particular industry, a party must be conscious of its monopolizing actions. Id. The court in Conceptual Engineering found an abundance of evidence demonstrating the plaintiff's intent to monopolize. Specifically, the court noted vicious and misleading advertising relating to ownership of the product in question. Id. at 1269. In an attempt to diminish the defendant's reputation, the plaintiffs placed ads in the defendant's hometown newspaper and also distributed propaganda at various trade shows. Id. The evidence of intent was so extreme that the court described plaintiff's tactics as "industrial warfare, with little regard for the rules of the game." Id.; see also Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 602-08 (1985) (noting agreement of case law and scholars on necessity of intent in suit under Sherman Act); Handgards, 743 F.2d at 1293 (noting that party alleging antitrust violation "can establish the existence of specific intent not only by direct evidence of unlawful design, but by circumstantial evidence of illegal conduct").

\(^{19}\) American Hoist & Derrick Co. v. Sowa & Sons Inc., 725 F.2d 1350, 1366-67 (Fed. Cir.), cert. denied, 469 U.S. 821 (1984); Brunswick Corp. v. Riegel Textile Corp., 752 F.2d 261, 265 (7th Cir. 1984), cert. denied, 472 U.S. 1018 (1985). Most patented inventions are economically worthless and those inventions that do make it to market only confer market power when there is an absence of effectively competing products. USM Corp. v. SPS Technologies, 694 F.2d 505 (7th Cir. 1982) (citing SCM v. Xerox Corp., 645 F.2d 1195, 1203 (2d Cir. 1981), cert. denied, 455 U.S. 1016 (1982)); see also Kevin J. Arquit, Patent Abuse and the Antitrust Laws, 59 ANTITRUST L.J. 739, 740 (1991). ("The proposition that a patent confers market power is true only when other suppliers cannot offer substitutes for a patented product in sufficient quantities to prevent the exercise of market power.").

\(^{20}\) Lorain Journal Co. v. United States, 342 U.S. 143, 153 (1951); Conceptual Eng'g, 714 F. Supp. at 1266. In Lorain, the Supreme Court held that the Lorain Journal's practice of denying advertising space to any local business who also advertised over a competing radio station constituted an attempt to monopolize. Lorain, 342 U.S. at 147-48. The Court found that the Lorain Journal's sole mission was to completely destroy and eliminate the competing radio station. Id. at 150. Because the Journal was "an indispensable medium of advertising" for the Lorain community, many local advertisers discontinued their use of radio advertising. Id. at 152-53. As a result, the loss of local revenue dollars threatened the survival of
plaintiff in an antitrust action must establish that the inequitable conduct of the defendant led to the type of injury that antitrust laws were designed to prevent.\textsuperscript{21} For example, if the defendant’s inequitable conduct merely resulted in the wrong individual being assigned inventorship, the consumer would not have suffered an injury and the antitrust laws would not be applicable.\textsuperscript{22}

the radio station. \textit{Id.} at 153. The Court held that although the radio station had not folded as of the time of the suit, it was dangerously probable that closure would occur. \textit{Id.} In \textit{Conceptual Engineering}, the district court determined that Conceptual Engineering’s “attempt to monopolize the market had a dangerous probability of success.” \textit{Conceptual Eng’g}, 714 F. Supp. at 1270. The court relied on the fact that Conceptual Engineering was the sole producer of the goods in question for the years involved, thus dominating the industry. \textit{Id.}

21. Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 489, cert. denied, 429 U.S. 1090 (1977). \textit{Brunswick Corp. v. Pueblo Bowl-O-Mat} involved an antitrust action brought by several bowling centers against one of the largest manufacturers of bowling equipment in the United States. \textit{Id.} at 479. Petitioner Brunswick, began acquiring numerous defaulting bowling centers in the United States. \textit{Id.} at 479-80. In total, Brunswick acquired and continued operating 168 bowling centers. \textit{Id.} at 480. Respondents were three regional centers that claimed injury from “the loss of income that would have accrued had the acquired centers gone bankrupt.” \textit{Id.} at 487. Thus, the alleged damages were the profits respondents would have earned had the defaulting competing centers never been acquired. \textit{Id.} at 489. The Court found that this result would have been the same if the acquired centers had either refinanced or been acquired by a smaller company. \textit{Id.} at 487. The Court held that the antitrust laws were not designed to prevent this type of injury. \textit{Id.} at 487-88; see also Dairy Foods Inc. v. Dairy Maid Prods. Coop., 297 F.2d 805, 808-09 (7th Cir. 1961) (holding that company’s actions that violate competitor’s “right to engage in business free from conspiratorial compulsion” constitutes the type of injury antitrust laws are designed to prevent). Nevertheless, an antitrust claimant who is a defendant in an infringement action may be able to recover attorney’s fees and other litigation expenses even if they cannot establish other injury. For example, in \textit{Kearney & Trecker Corp. v. Cincinnati Milacron Inc.}, the United States Court of Appeals for the Sixth Circuit held:

Milacron did not prove direct market place damages resulting from K&T’s anticompetitive acts. However, the district court found that Milacron was placed in the position of being required to choose from among three alternatives—cease competing with K&T, take a license from K&T, or defend an infringement action. Milacron chose to defend the action brought by K&T, and in the course of these proceedings it established the existence of fraud to the satisfaction of the district court. This in itself met the requirement that there be a causal connection between the infringement suit and the antitrust activities and led the district court to conclude, as a matter of law, that Milacron was entitled to recover the costs and expenses of defending the infringement suit as damages for the antitrust violations.

562 F.2d 365, 374 (6th Cir. 1977).

22. Brunswick Corp. v. Riegel Textile Corp., 752 F.2d 261, 265-66 (7th Cir. 1984). In this case, Brunswick alleged that it was the true inventor of a particular process used to make “antistatic yarn.” \textit{Id.} at 264. Brunswick contended that it had revealed the invention to Riegel who, unlike Brunswick, would be able to utilize the process. Riegel allegedly promised not to disclose the process. \textit{Id.} Subsequently, both Brunswick and Riegel applied for a patent and Riegel was awarded a patent on the process. \textit{Id.} Brunswick sued Riegel, claiming that Riegel’s procure-
In some instances, the fraudulent procurement of a patent may result in the government filing suit under section 5 of the Federal Trade Commission (FTC) Act. This provision is broader in scope than either the Sherman Act or the Clayton Act, prohibiting “[u]nfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce.”

In order to prevail under section 5, the Federal Trade Commission must establish that a fraudulently obtained patent had an adverse effect on competition. Unlike the Clayton Act, the FTC Act does not have a provision allowing the trebling of damages, or a provision allowing private individuals to file an action. Nevertheless, courts have used the FTC Act to affirm Commission orders forcing patent holders to license inventions at fixed, and relatively low, royalty.

of the patent by fraud constituted a violation of the Sherman Act. The Seventh Circuit disagreed, stating:

[F]or a fraud to be material in an antitrust sense the plaintiff must show that but for the fraud no patent would have been issued to anyone. If a patent would have been issued to someone, the fraud could but have diverted market power from one who had the right to possess and exploit it to someone else.

... The theft of a perfectly valid patent, in contrast, creates no monopoly power; it merely shifts a lawful monopoly into different hands. This has no antitrust significance, although it hurts the lawful owner of the monopoly power.

_id at 265-66.


24. American Cyanamid Co. v. FTC, 363 F.2d 757, 768 (6th Cir. 1966). In American Cyanamid, the Sixth Circuit quoted the Federal Trade Commission’s order in the case:

We are not holding that every misrepresentation of fact or withholding of material information before the Patent Office necessarily constitutes per se an unfair method of competition under the Federal Trade Commission Act. Some patents may be commercially worthless or have no adverse effects on competition. The facts of this case, however, are that a patentee has asserted monopoly rights under a patent so acquired and, as a consequence thereof, has restrained competition in the manufacture and sale of an important antibiotic; in at least one year the annual sales of tetracycline exceeded $100,000,000. The record further discloses the numerous drug houses have endeavored to enter the tetracycline market. All have been refused with the exception of respondents Cyanamid, Bristol, Squibb and Upjohn.

_id at 768.

alty rates.\textsuperscript{26}

A particularly good example of patent abuse in the pharmaceutical industry is provided by \textit{Charles Pfizer & Co. v. Federal Trade Commission},\textsuperscript{27} a case also involving elements of price fixing and cartel behavior. In October 1952, Pfizer filed a patent application on the antibiotic tetracycline.\textsuperscript{28} In March of the following year, American Cyanamid filed an application on the same molecule and an interference proceeding was initiated by the Patent Office to resolve the question of priority.\textsuperscript{29} Pfizer and American Cyanamid subsequently entered into a cross-licensing agreement ensuring that both companies would benefit if the patent on tetracycline was awarded to either.\textsuperscript{30} American Cyanamid then withdrew its claim to priority and, accordingly, the interference proceeding was terminated in February 1954.\textsuperscript{31}

One month later, Bristol-Myers filed an application for a patent whereby it claimed priority to tetracycline.\textsuperscript{32} As a result, the Patent Office initiated a second interference action.\textsuperscript{33} During the course of this proceeding, both American Cyanamid and Pfizer intentionally misrepresented the results of experiments performed to determine whether tetracycline was produced by a previously pat-

\textsuperscript{26} For an example of a court using the FTC Act in such a fashion, see \textit{Charles Pfizer & Co. v. FTC}, 401 F.2d 574 (6th Cir. 1968), \textit{cert. denied}, 394 U.S. 920 (1969). For further discussion of Pfizer, see infra notes 27-38 and accompanying text.

\textsuperscript{27} 401 F.2d 574 (6th Cir. 1968). This case should be read in conjunction with the Sixth Circuit's earlier decision on the same case, \textit{American Cyanamid v. FTC}, 363 F.2d 757 (6th Cir. 1966).

\textsuperscript{28} \textit{Pfizer}, 401 F.2d at 578.

\textsuperscript{29} \textit{Id.} at 578-79. An interference proceeding is provided for by 35 U.S.C. § 135 (1988): Under § 135(a):

(a) Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, an interference may be declared and the Commissioner shall give notice of such declaration to the applicants, or applicant and patentee, as the case may be. The Board of Patent Appeals and Interference shall determine questions of priority of invention and may determine questions of patentability.

\textit{Id.}

\textsuperscript{30} \textit{Pfizer}, 401 F.2d at 579. The agreement provided that American Cyanamid and Pfizer would decide between themselves who had priority in the patent. \textit{American Cyanamid}, 363 F.2d at 761. Once priority was settled, the losing party would help the winner secure the patent. \textit{Id.} Upon receipt of the patent, the patentee would license use of the patent to the other company, and both companies would share any relevant information regarding the production of tetracycline. \textit{Id.}

\textsuperscript{31} \textit{Pfizer}, 401 F.2d at 579.

\textsuperscript{32} \textit{Id.}

\textsuperscript{33} \textit{Id.}
As a direct result of these falsifications, the patent examiner dropped his contention that the invention in question was not patentable. The Federal Trade Commission held hearings and found that the actions by American Cyanamid and Pfizer constituted a violation of section 5 of the FTC Act. On appeal, the United States Court of Appeals for the Sixth Circuit summarized the findings of the Federal Trade Commission as follows:

The Commission found that Pfizer made deliberately false and misleading statements to, and withheld material information from, the Patent Office in securing its tetracycline patent; that this conduct amounted to 'unclean hands,' 'inequitableness' and 'bad faith' vis a vis the Patent Office; that Pfizer asserted monopoly rights under its patent in order to prevent competition in the tetracycline market; and that the effects of Pfizer's acts and conduct before the Patent Office have been to . . . create a monopoly in the . . . sale of tetracycline . . . .

The circuit court affirmed the Commission's decision that Pfizer and American Cyanamid had violated section 5 of the FTC Act and, among other remedies, ordered Pfizer to license its patent on tetracycline to any domestic applicant at a royalty of 2.5%.

B. Tying Arrangements

A tying arrangement occurs whenever a seller conditions the

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34. Id. at 580-81. There were also indications that, like American Cyanamid, other competitors of Pfizer may have used knowledge concerning the fraud to force their way into the monopoly. Bristol-Myers relinquished its claim to priority when Pfizer granted it a license to manufacture and sell tetracycline. Similar licenses were granted to Squibb and Upjohn. American Cyanamid, 363 F.2d at 766. All of the licensees sold tetracycline at the same price. Id. The FTC filed suit alleging that each of the companies involved had engaged in price fixing and monopolization in violation of § 5 of the FTC Act. Id. at 762. Charges that Squibb, Upjohn and Bristol-Myers had participated in deliberately concealing information from the Patent Office were dismissed, although each was found guilty of price fixing. Id.

35. Pfizer, 401 F.2d at 581-83.

36. Id. at 586.

37. American Cyanamid, 363 F.2d at 762. The Commission also found that American Cyanamid had suppressed certain relevant information. Id. The Commission held that such suppression when "combined with the cross-licensing agreement between Pfizer and Cyanamid . . . constituted an illegal attempt to share a monopoly with Pfizer and amounted to a combination in restraint of trade." Id.

38. Pfizer, 401 F.2d at 586 (affirming and providing extracts from Commission's final decision).
sale of one product upon the purchase of a second, distinct product. Historically, such arrangements have taken the form of a patentee demanding that purchasers of his or her invention (the tying product) also agree to purchase nonpatented goods (the tied products). For example, the maker of a patented printing machine may demand that purchasers buy the paper and ink for the machine exclusively from him or her.

Patent law has long condemned tying arrangements as attempts to unlawfully extend patent monopolies beyond the scope of a claimed invention. As a result, patentees may not tie the

39. E. THOMAS SULLIVAN & HERBERT HOVENKAMP, ANTITRUST LAW, POLICY AND PROCEDURE 433-34 (1989). Tying arrangements are typically governed by the following three statutes: the Sherman Act, the Clayton Act and the FTC Act. Id. at 434. According to Professors Sullivan and Hovenkamp, tying arrangements can be broken down into two different types, “fixed proportion and variable proportion.” Id. at 436. A “fixed proportion” tie-in is basically an exchange of products one-for-one, or whatever proportion the seller has indicated. Id. The tying arrangement more applicable to this Article is the “variable proportion” arrangement. “In a variable proportion arrangement purchasers or lessees of the tying product use varying amounts of some tied product.” Id. Tying arrangements are most often used to allow the owner of the tying product (and perhaps the tied product) “to price discriminate—that is to obtain a higher rate of profit from higher intensity users” of the tying products. Id.

40. See, e.g., Henry v. A.B. Dick Co., 224 U.S. 1 (1912), overruled by Motion Picture Patents Co. v. Universal Film Mfg., 243 U.S. 502 (1917). In Henry, A.B. Dick Company sold one of their patented mimeograph machines to a customer. Id. at 11. The mimeograph contained a license restriction requiring that the machine could “be used only with the stencil paper, ink and other supplies made by A.B. Dick Company.” Id. The defendant, Henry, was charged with selling the customer a can of ink not made by A.B. Dick with full knowledge of the existing license restriction. Id. at 11-12. Henry was found guilty of contributory infringement of A.B. Dick Company's patent. Id. at 48-49. According to the Supreme Court, “[c]ontributory infringement has been well defined as the intentional aiding of one person by another in the unlawful making or selling or using of the patented invention.” Id. at 34 (citations omitted). A significant fact in the Court’s decision was that Henry knew of the restriction on the license. Id. at 49. The Court held that even though A.B. Dick Company did not maintain a patent on ink, stencil and paper, use of non-A.B. Dick material for the particular mimeograph constituted infringement. Id. at 51. According to the Henry Court, infringement occurs because “competition in the sale of such articles, for use with the [patented] machine, w[ould] be affected.” Id. at 51-52.

Henry was subsequently overruled. See Motion Picture Patents Co. v. Universal Film Mfg., 243 U.S. 502, 517 (1944) (“It is obvious that the conclusions arrived at in this opinion are such that the decision in Henry . . . must be regarded as overruled.”). For further discussion of the Motion Picture holding, see infra note 41 and accompanying text.

41. Motion Picture Patents Co. v. Universal Film Mfg., 243 U.S. 502 (1917). Motion Picture involved a patent for a piece of equipment used in a movie projection machine. Id. at 505. Motion Picture Patents Company owned the patent and granted a license to one of the defendants in the case. Id. at 506. The license contained a restriction limiting the machine’s use to certain films not under any patent, nor patented with the projector itself. Id. The defendants used films other than those of Motion Picture when operating the projector. Id. Consequently,
purchase of their invention to the purchase of other products unless the tied products are both essential and unique to the invention. Restrictions on the purchase of unpatented products such as staple goods are unenforceable.

The Supreme Court recently considered the antitrust implications of tying arrangements in *Jefferson Parish Hospital District No. 2 v. Hyde*. According to the majority and Justice O'Connor's concurrence, tying arrangements are per se illegal if four elements can be established: (1) the tying and tied products are separate; (2) the seller has market power or market power is probable in the tying product; (3) the seller is using his market power to force the buyer to purchase the tied product; and (4) the arrangement affects a substantial amount of commerce in the tied product by restraining competition. Each of these elements of per se illegality is consid-

Motion Picture filed an infringement suit against the defendants for violation of the restriction. The Court stated that the scope of the monopoly granted to an inventor via a patent "must be limited to the invention described in the claims of his [or her] patent." *Id.* at 511. It further determined that materials used with the machine "are not part of the patented machine or of the combination which produces the patented result." *Id.* at 512. The Court also focused on the language of the version of the Clayton Act existing at the time, stating that it was unlawful for a company to license patented or unpatented machinery conditioned upon the non-use of competitors' machinery or equipment. *Id.* (citation omitted). The Court condemned tying arrangements, stating that "[a] restriction which would give to the plaintiff such a potential power of evil over an industry . . . is plainly void, because wholly [outside] the scope and purpose of our patent laws and . . . gravely injurious to the public interest." *Id.* at 519; see also *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661, 664-65 (1944) (emphasizing consistency of court decisions after *Motion Picture* in prohibiting patent owners from requiring licensees of patented machines to use specified non-patented products).


43. See *Mercoid*, 320 U.S. at 664 (prohibiting restriction on non-patented goods); *Motion Picture*, 243 U.S. at 512 (finding that grant of patent "has nothing to do with the materials with which or on which the machine operates").

44. 466 U.S. 2 (1984). In *Jefferson Parish*, the Supreme Court considered an agreement under which all of the patients undergoing surgery at a particular hospital were required to purchase anesthesiological services from a specified medical group. *Id.* at 5. An anesthesiologist, Hyde, sought a declaratory judgment that the agreement was illegal. *Id.*

45. *Id.* at 15-18, 21; *id.* at 38-39 (O'Connor, J., concurring). In concurrence, Justice O'Connor argued that a rule of reason approach, rather than a per se illegality approach, made more sense:

The "per se" doctrine in tying cases has thus always required an elaborate inquiry into the economic effects of the tying arrangement. As a result, tying doctrine incurs the costs of a rule-of-reason approach with-
First, a "coherent economic basis for treating the tying and tied products as distinct" must be established. The Court declared that consumer demand will determine whether such a basis exists. Accordingly, the Court stated: "[W]hether one or two products are involved turns not on the functional relation between them, but rather on the character of the demand for the two items. ... [A] tying arrangement cannot exist unless two separate product markets have been linked."

The second element that must be established is that the seller has market power with respect to the tying product. The Court in Jefferson Parish reaffirmed its earlier position that patented products carry with them a presumption of market power. Under this pre-
sumption, the amount of consumer demand for a patented product is ignored, and, at a minimum, the burden of producing evidence that a product is subject to significant competition shifts to the defendant. 51

The third element set forth in Jefferson Parish as necessary for a finding of per se illegality is the probability of “forcing” on the part of the seller. 52 The “essential characteristic of an invalid tying arrangement lies in the seller’s exploitation of its control over the films with the purchase of lower quality, less desired films. Id. at 40. The defendants would not license an individual feature film to a television station nor would they allow the station to select the lower quality films attached to the feature’s sale. The Loew’s Court reiterated its antipathy to “use of the . . . patent monopoly to extend the patentee’s economic control to unpatented products.” Id. at 46. Basing its decision on both the nature and effect of the tying arrangement in question, the Court held that the arrangement restricted the free flow of trade in the industry and thus was illegal. Id. at 49-50. When the effect of an arrangement is to restrain free competition, “the antitrust laws do not permit a compounding of the statutorily conferred monopoly.” Id.

The use of patents as a proxy for market power has been the subject of considerable criticism. In Jefferson Parish, Justice O’Connor argued that:

A common misconception has been that a patent or copyright . . . suffices to demonstrate market power. . . . [I]t 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 substitutes for the patented product.

Jefferson Parish, 466 U.S. at 37 n.7 (O’Connor, J., concurring); see also Brinson, supra note 45, at 45-68 (criticizing presumption of market power when product is patented). The critical factor is not that a patented product is unique. Brinson, supra note 45, at 65. Absent an error on the part of the Patent Office, all patented products are unique. The critical factor is that consumers regard the unique attributes of the product as desirable enough to justify a higher price. Id. at 53-58, 66. Exclusionary rights granted by a patent “do not enable the patentee . . . to prevent the development and sale of substitutes for the tying product,” and therefore a presumption of economic power grounded on these rights is illusory. Id. at 84-85.

See Brinson, supra note 45, at 52 (providing example of burden shifting to defendant). The Supreme Court has never indicated whether the presumption of market power is conclusive or rebuttable. Id. at 49. If rebuttable, the Court has not stated whether the presumption shifts the burden of persuasion to the defendant or merely the burden of production. Id. Lower courts have generally regarded the presumption as rebuttable. See, e.g., Digidyne Corp. v. Data Gen. Corp., 734 F.2d 1336, 1344 (9th Cir. 1984) (stating that burden of rebutting presumption of market power is on party accused of tying), cert. denied, 473 U.S. 908 (1985). Some jurisdictions have adopted Justice O’Connor’s view that plaintiffs are not entitled to a presumption of market power solely because a defendant’s product is patented. See, e.g., Klo-zik Co. v. General Motors Corp., 677 F. Supp. 499, 505 (E.D. Tex. 1987) (remarking that although patent typically creates presumption of market power, mere existence of patent does not demonstrate effect on interchangeability of product in market, which is better indication of market power); Nobel Scientific Indus. v. Beckman Instruments Inc., 670 F. Supp. 1313, 1329 (D. Md. 1986) (citing Justice O’Connor’s concurrence in Jefferson Parish and stating that true indicator of market power is lack of “readily available substitutes,” not existence of patent), aff’d, 831 F.2d 537 (1987), cert. denied, 487 U.S. 1226 (1988).

51. See Jefferson Parish, 466 U.S. at 15-16.
tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all or might have preferred to purchase elsewhere on different terms. A seller may not use the market power of one product to coerce buyers into paying higher prices for a tied product. Thus, forcing may be thought of as an abuse of market power.

The final element that must be established for a tying arrangement to be per se illegal is that the arrangement must have affected a substantial amount of commerce. The word “substantial” in this context may be taken as synonymous with “significant.” “[T]he controlling consideration is simply whether a total amount of business, substantial enough in terms of dollar-volume so as not to be merely de minimis, is foreclosed to competitors by the tie . . . .”

The overall effect of antitrust law, as applied in Jefferson Parish, is to deter pharmaceutical manufacturers from combining a proprietary drug with any product that may be considered distinct. An

53. Id. at 12.
54. Id. at 12-14 & n.19.
55. Id. at 16.
56. Fortner Enters. v. United States Steel Corp., 394 U.S. 495, 501 (1969). According to the Fortner Court, the per se illegality of a tying arrangement is established if the plaintiff can demonstrate that: 1) “a party has sufficient economic power with respect to the tying product to appreciably restrain free competition in the market for the tied product,” and 2) “a ‘not insubstantial’ amount of interstate commerce is affected.” Id. at 499.
57. See Mark A. Hurwitz, Note, Bundling Patented Drugs and Medical Services: An Antitrust Analysis, 91 Colum. L. Rev. 1188, 1197-206 (applying tying arrangement analysis to antipsychotic drug, Clozaril, and unassociated blood monitoring system). The wisdom of antitrust tying doctrine has been the subject of considerable debate. See, e.g., id. at 1206-20 (arguing for rule of reason analysis in certain tying arrangements). For example, some commentators have argued that tying arrangements do not hurt consumers and therefore, should not be subject to antitrust law. See, e.g., Bork, supra note 8, at 365-81 (arguing that tying arrangements can benefit consumers through economics of scale, technological interdependence and increased market efficiency). The essence of this argument is that it is simply not possible for a seller to extend the monopoly power of a product by tying the sale of that product to a second product. Id. at 365-66. As one commentator summarized this argument:

Even in those circumstances when a patent does convey some market power, licensing restrictions do not extend the patent monopoly . . . in any economically meaningful sense beyond the market for the patented product. This notion is basically a recognition that there is only a single monopoly price for any given product, and you can either sell that product alone or you can combine it with as many complements as you want, but you are only going to be able to earn that one monopoly profit. The notion that a patentee may somehow increase its monopoly profits by using the patent as a lever into another market is simply wrong as an economic matter.

example of an improper tying arrangement involving pharmaceuticals is provided by the anti-schizophrenic drug Clozaril.\textsuperscript{58}

Clinical studies in both the United States and in Europe indicate that Clozaril is superior to all other drugs presently available for the treatment of schizophrenia.\textsuperscript{59} Moreover, the drug is often effective in patients whose disease has proven resistant to all other treatments.\textsuperscript{60} Unfortunately, Clozaril also causes agranulocytosis, a potentially fatal blood disorder, in a small percentage of the patients taking the drug.\textsuperscript{61} The risk of death can be largely eliminated, but only by identifying patients experiencing agranulocytosis and discontinuing the administration of Clozaril to those patients.\textsuperscript{62}

In October 1989, the Food and Drug Administration (FDA) approved Clozaril for the treatment of severely ill schizophrenic patients who fail to respond to standard therapy.\textsuperscript{63} Sandoz

\textit{of Tie-In Sales: Re-examining the Leverage Theory}, 39 STAN. L. REV. 737 (1987) (arguing that tying arrangements may allow manufacturers to use monopoly power in one product to attain monopoly power in another product, but end results benefit consumers and market). Although Wollenberg agrees with earlier commentators that tying arrangements can benefit social welfare and should not be per se illegal, he does not agree that it is impossible for a monopolist to use the monopoly power in one product as leverage into another product market. Wollenberg, \textit{supra}, at 744-60. Wollenberg believes that, under the proper economic conditions, a monopolist can exert monopoly power in a second market, but only at the price consumers are willing to pay for the "bundle" of goods. \textit{Id.} at 744-50. Wollenberg argues that this situation benefits both the seller through increased profits, and the consumer through increased social welfare. \textit{Id.} at 749.

\textsuperscript{58} For a recent review of Clozaril in the context of antitrust law, see Hurwitz, \textit{supra} note 57.


\textsuperscript{60} \textit{Id.} at 865. The clinical studies with Clozaril demonstrated its effectiveness in severely ill patients who had not responded to the antipsychotic medications Thorazine, Prolixin and Haldol. \textit{Id.} at 856-66. When given Clozaril, these patients demonstrated fewer symptoms of schizophrenia, and did not experience the disturbing side effects associated with the other antipsychotic medications.

\textsuperscript{61} \textit{Id.} at 865. Agranulocytosis is a condition associated with a potentially fatal low level of white blood cells. Hurwitz, \textit{supra} note 57, at 1190. The incidence rate of agranulocytosis in patients taking Clozaril is between one and two percent. Carl Salzman, \textit{Mandatory Monitoring for Side Effects}, 323 NEW ENG. J. MED. 827, 827 (1990).

\textsuperscript{62} Salzman, \textit{supra} note 61, at 827. Dr. Salzman reports that a person’s white blood cell count returns to normal shortly after Clozaril is discontinued. If the drug is re-administered, however, the condition is likely to return. \textit{Id.}

\textsuperscript{63} Ron Winslow, \textit{Wonder Drug: Sandoz Corp.’s Clozaril Treats Schizophrenia But Can Kill Patients and Blood Tests to Prevent the Lethal Side Effects are Costly, Controversial}, WALL ST. J., May 14, 1990, at A1; see also Stuart L. Nightingale, \textit{Approval of Clozapine for Refractory Schizophrenia}, 263 JAMA 202, 202 (1990) (reporting FDA approval). Recognizing the risk of agranulocytosis associated with the use of Clozaril, the FDA required instructions that Clozaril should be used only with severely ill patients who have not responded to other antipsychotic medications. Nightingale, \textit{supra}, at
Pharmaceuticals was granted marketing rights under the Drug Price Competition and Patent Restoration Act of 1984 and it distributed the drug exclusively through Caremark Pharmacies.\textsuperscript{64} Sandoz demanded that patients receiving the drug adhere to a compulsory blood monitoring program designed to detect agranulocytosis.\textsuperscript{65} Each week, patients were required to go to a Caremark pharmacy and have blood drawn for testing.\textsuperscript{66} If a patient complied and test results were negative, he or she would receive a supply of Clozaril sufficient for one more week.\textsuperscript{67} Although this program was effective at reducing the risk of agranulocytosis, it was also expensive. The cost of treating a patient using the combined drug and drug monitoring system, approximately $9,000 per year, could not be afforded by the public agencies providing care to most of the mentally ill.\textsuperscript{68} As a result, Clozaril was available only to a small fraction of the people who could potentially benefit from its administration.\textsuperscript{69} Twenty-nine states filed antitrust actions against Sandoz claiming that it had illegally tied the sale of a drug to a medical service.\textsuperscript{70} In response to this pressure, Sandoz announced that, beginning in April 1991, it would allow health care providers to perform their own independent monitoring.\textsuperscript{71}
The response of Sandoz is not surprising. Under the standards set forth in *Jefferson Parish*, a verdict for the plaintiffs was very probable. In 1990, Clozaril was the only drug on the market tied to a mandatory medical service despite the presence of drugs with similarly severe side effects. Moreover, Clozaril had been marketed in Europe for over fifteen years using voluntary monitoring. In addition, it was clear from the publicity surrounding the drug, and from the numerous lawsuits filed against Sandoz, that there was consumer demand for separate products and that purchasers were being forced to pay for a monitoring program that they did not want. Thus, the first element necessary for a per se illegal tying arrangement, a basis for treating tying and tied products as distinct, and the third element, forcing, were clearly present.

The second element, market power in the tying product, was also apparent. The relevant market for Clozaril was defined by its FDA license as severely ill patients failing to respond to standard therapy for schizophrenia. Clozaril was the only drug occupying this market and was sold at an unusually high price. The combination of functional distinctiveness and an abnormally raised price, constitutes market power in its most obvious form.

Finally, per se illegality requires that the tying arrangement af-

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Sandoz's approval. *Id.* at 1503. Experts believed that "unbundling" the drug and the monitoring system would lower the cost of Clozaril from $9000 a year to $4160 a year, which was still three times the price of Clozaril in Europe. *Id.* at 1507. Throughout the debate over Clozaril and the blood monitoring system, Sandoz claimed that it was only protecting itself from liability and had not realized a profit on its development of Clozaril. Industry analysts, however, disputed this claim. Paul Cotton, *Public Pressure Ends 'Bundled' Drug Program, But How Much Cost Will Drop Remains Unclear*, 265 JAMA 837, 837-38 (1991) [hereinafter Cotton, *Pressure Ends Program*].

72. For a complete discussion of the standards set forth in *Jefferson Parish*, see *supra* notes 44-56 and accompanying text.


74. *Id.* at 1190. In Europe, the price of Clozaril without the monitoring system was only $1000-$1500 a year, compared to $9000 a year in the United States. *Id.*

75. See *id.* at 1189-96 (discussing legal challenges to Clozaril Patient Management System).

76. For a thorough discussion of the first and third elements of a per se illegal tying arrangement, see *supra* notes 46-48, 52-54 and accompanying text.

77. For a discussion of the second element of a per se illegal tying arrangement, see *supra* notes 49-51 and accompanying text.

78. Nightingale, *supra* note 63, at 202. For a review of the clinical protocols required before Clozaril can be administered, see *supra* note 63.

79. See Winslow, *supra* note 65, at 11 (reporting background information on Clozaril controversy). For a discussion of the availability and price of Clozaril, see *supra* notes 68-74 and accompanying text.
fect a "not insubstantial" amount of commerce. The monitoring service linked to the purchase of Clozaril was estimated to generate approximately $48,000,000 in revenue annually. It is difficult to imagine that a court would find that this does not fulfill the minimal requirement set forth in United States v. Loew's.

Under a per se approach, Sandoz would have been denied the opportunity of arguing that sales of their drug and service package did not have an anticompetitive effect, but that it actually benefitted consumers. With its best defense unavailable, and facing the

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80. For a discussion of this fourth element in a per se illegal tying arrangement, see supra notes 55-56 and accompanying text.
81. Hurwitz, supra note 57, at 1202.
82. 371 U.S. 38 (1962). For a discussion of Loew's and its effect on antitrust law with regard to tying arrangements involving a patented product, see supra note 50.
83. See Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 15 (1984) (defining per se condemnation of tying arrangements as "condemnation without inquiry into actual market conditions"). The argument that Clozaril and its associated blood monitoring system actually benefitted consumers was not the sole defense available to Sandoz. See Lynn H. Pasahow, Recent Developments in Tying Law, 57 Antitrust L.J. 379, 391-93 (1988) (discussing business justification defenses in tying cases); Hurwitz, supra note 57, at 1204-06 (presenting defenses used by defendants in illegal tying cases). For instance, Sandoz could have argued that tying Clozaril to the blood monitoring system was necessary to protect consumer goodwill. Hurwitz, supra note 57, at 1204. The basic premise of the goodwill defense is that consumers purchase the tying product from the manufacturer with the expectation of receiving parts and services of a quality necessary to use the product. In order to fulfill these expectations the manufacturer packages the tying product with the tied product. See, e.g., Metrix Warehouse Inc. v. Daimler-Benz Aktiengesellschaft, 828 F.2d 1033, 1040-41 (4th Cir. 1987) (discussing goodwill defense), cert. denied, 486 U.S. 1017 (1988). Although a goodwill defense is the one most frequently offered, it is generally unsuccessful. See, e.g., Standard Oil Co. v. United States, 397 U.S. 293, 306 (1969) (stating that "[goodwill defense] fails in the usual situation because specification of the type and quality of the product to be used in connection with the tying device is protection enough"); Metrix Warehouse, 828 F.2d at 1040-41 (rejecting goodwill defense). Alternatively, Sandoz could have offered a business justification defense, if it could demonstrate that the tying arrangement served a legitimate business purpose and that no less restrictive alternative was available. See Pasahow, supra, at 391 (discussing business justification defense). On rare occasions, courts have accepted a business justification defense. See, e.g., Mozart Co. v. Mercedes-Benz of N. Am., Inc., 833 F.2d 1342, 1348 n.5 (9th Cir. 1987) ("Allowing the defendant to assert a business justification defense is one way of inquiring into whether the reasons for the relatively historical condemnation of tie-ins apply to the challenged arrangements."); cert. denied, 488 U.S. 870 (1988); Dehydrating Process Co. v. A.O. Smith Corp., 292 F.2d 655, 655 (1st Cir.) ("We think the principle ... that a proper business reason may justify what otherwise might be an unlawful tie-in, is sound."); cert. denied, 368 U.S. 931 (1961); United States v. Jerrold Elecs. Corp., 187 F. Supp. 545, 554-58 (E.D. Pa. 1960) (ruling that tying arrangements may be legitimate means of protecting new firm's interests in technologically complex industry), aff'd, 365 U.S. 567 (1961) (per curiam). In general, however, business justification defenses have been unsuccessful because the defendants fail to show that the tying arrangement is the least restrictive way for them to achieve their objectives. See, e.g., Metrix Warehouse, 828 F.2d at 1040.
likely imposition of treble damages, Sandoz wisely chose to comply with the requests of its adversaries and eliminate mandatory blood monitoring as a condition for the sale of Clozaril.84

C. Patent Licenses

Nowhere is the tension between patent law and antitrust law more apparent than in patent license agreements.85 Congress has expressly granted patent holders the “right to exclude others from making, using, or selling” their invention.86 Manufacture, use and sale constitute separate rights that can be individually licensed by the inventor.87 Thus, a patent holder may grant a licensee the right

(“An asserted business justification cannot salvage a tying arrangement that is otherwise per se unlawful without proof that means less restrictive than the tie-in were not feasible to achieve the desired protection.”). It therefore appears unlikely that Sandoz would have prevailed using any of these arguments.

84. Cotton, Controversy Continues, supra note 71, at 1503; Cotton, Pressure Ends Program, supra note 71, at 837.

85. See generally Symposium, Patent-Antitrust: Dead or Alive?, 59 ANTITRUST L.J. 657 (1991) (presenting a series of articles on patent-antitrust tension). This has been reflected, in part, by the position of the Antitrust Division of the Department of Justice. Rule, supra note 57, at 729 n.1. In the early 1970s, the Antitrust Division regarded most restrictions contained in patent licenses as per se illegal, including: tying arrangements; restrictions on resale; grantbacks; exclusive dealing arrangements; exclusive patent grants; package licenses; end-product royalties; restrictions on the resale of unpatented products made using a patented process; and the setting of prices at which licensees could sell patented products. Id. at 732. The Antitrust Division has now adopted a more hospitable attitude toward licensing restrictions, at least in cases where such restrictions fall within the proper scope of a patent. Id. Using a rule of reason approach, the Division examines all relevant market conditions and asks whether the net effect of a particular restriction will be procompetitive or anticompetitive. Id.


Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, for the term of seventeen years, subject to the payment of fees as provided for in this title, of the right to exclude others from making, using, or selling the invention throughout the United States and, if the invention is a process, of the right to exclude others from using or selling throughout the United States, or importing into the United States, products made by that process, [sic] referring to the specification for the particulars thereof. A copy of the specification and drawings shall be annexed to the patent and be a part thereof.

Id. (footnotes omitted).

87. Adams v. Burke, 84 U.S. (17 Wall.) 453, 456 (1873). In this case, Adams obtained the rights to a patent for a newly designed coffin lid. Id. at 454. Before Adams obtained his interest, however, another party purchased the same patent interests for a geographical area ten miles in radius around Boston. Id. Burke purchased one of the coffin lids from the third party, within the ten mile radius of Boston, but used the lid outside of this designated region. Id. Adams argued that this use infringed on his exclusive right granted by the patent. Id. The Court noted that “[t]he right to manufacture, the right to sell, and the right to use are each substantive rights, and may be granted or conferred separately by the patent-
to make and use an invention but withhold the right to sell it. In addition, under the Patent Act, patentees may limit the rights they grant to the "whole or any specified part of the United States." Such territorial restrictions are usually imposed to limit competition, and therefore would be per se violations of section 1 of the Sherman Act were they not part of a patent license.

In considering the validity of license restrictions, three central questions must be addressed: (1) Does the restriction fall within the scope of the invention; (2) Is the restriction a vertical or a horizontal restraint; and (3) Did the patent holder act unilaterally in imposing the restriction? Each of these questions is considered separately.

1. Does the Restriction Fall Within the Scope of the Invention?

As long as a patent holder acts unilaterally and imposes a restriction only upon his or her own invention, the restriction is immune from antitrust law. This is true whether the restriction is in

"Id." at 456. In ruling against Adams, the Court reasoned that "when the patentee . . . sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use." Id.


89. Patent Act, 35 U.S.C. § 261 (1988). The relevant portion of § 261 reads: Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his [or her] assigns or legal representatives may in like manner grant and convey an exclusive right under his [or her] application for patent, or patents, to the whole or any specified part of the United States.

Id.; see also Keller v. Standard Folding Bed Co., 157 U.S. 659, 661 (1895) (presenting early statute granting patent holder right to grant exclusive right under patent to any specified part of country).


Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding $10,000,000 if a corporation, or, if any other person, $350,000, or by imprisonment not exceeding three years, or by both punishments, in the discretion of the court.

Id.; see also United States v. Socony-Vacuum Oil Co., 310 U.S. 150 (1940); United States v. Addyston Pipe & Steel Co., 175 U.S. 211, 257-43 (1899) (finding territorial restraint of trade illegal).

91. Dunlop v. Kelsey-Hayes Co., 484 F.2d 407, 417 (6th Cir. 1973), cert. denied, 415 U.S. 917 (1974). In Dunlop, the relevant issue was whether a patent owner could grant a license to a foreign company to produce the patented product while preventing the foreign company from exporting the product to the United States. Id. The court reasoned that because the patent holder could restrict domestic licenses without violating antitrust law, it must also be able to restrict foreign licenses. Id.
the form of a territorial restraint, a restriction on the use for which a patented product is sold, a restraint on the quantity of patented product produced, or a restraint on price. If the pat-

92. See 35 U.S.C. § 261 (1988) (granting patent holder right to assign licenses restricted to specified geographical areas); see also Bloomer v. McQuewen, 55 U.S. (14 How.) 539, 549 (1852) ("And when [the patent owner] sells the exclusive privilege of making or vending [the goods] for use in a particular place, the purchaser buys a portion of the franchise which the patent confers."); United States v. Westinghouse Elec. Corp., 471 F. Supp. 532, 541-42 (N.D. Cal. 1978) (finding license agreement granting right to use technology for goods sold anywhere in world, except in United States and Canada, to be valid), aff’d, 648 F.2d 642 (9th Cir. 1981).

93. See General Talking Pictures Corp. v. Western Elec. Co., 304 U.S. 175, 179-82 (1938) (upholding license agreement to sell patented amplifiers for limited use). In General Talking Pictures, American Telephone & Telegraph held a patent for radio vacuum tube amplifiers. Id. at 179. The American Transformer Company was granted a non-exclusive license to manufacture and to sell these tubes for radio reception. Id. at 179-80. The patent holder alleged that Transformer knowingly sold amplifier tubes for use in motion picture theaters, violating the license agreement. Id. at 180. Transformer argued that the patent owner could not restrict the use of a patented product after it was sold to an ordinary purchaser. Id. The Court suggested that this position might be true if Transformer was assigned the patent, but instead it only possessed restricted license agreement. Id. at 181. Under a license agreement, "[p]atent owners may grant licenses extending to all uses or limited to use in a defined field." Id.


The owner of a patent has a right to fix royalties; to prescribe sales prices; to limit the quantity of articles or the percentage of the whole output which the licensee may manufacture, use or sell; to limit the territory in which the licensee may operate under the patent; to prescribe the purpose or the field for which the licensee can utilize the invention; to determine the number of licensees and to select at his [or her] discretion those to whom licenses shall be issued.

Parker, 61 F. Supp. at 812.

95. United States v. General Elec. Co., 272 U.S. 476, 488-94 (1926). In General Electric, the patent holder issued a license to a manufacturer to sell patented incandescent electric lights at a price established by the patent holder. Id. at 479. The government challenged this arrangement as an illegal restraint of trade. Id. The Court ruled that the license agreement was valid because a patent holder retains all property interests in the patented product sold by a licensee. Id. at 490. The Court concluded that the patent holder could restrict the licensee’s sale price, as long as the conditions of sale are normally and reasonably adapted to secure pecuniary reward for the patent holder. Id. General Electric has never been overruled. See United States v. Huck Mfg. Co., 227 F. Supp. 791, 803 (E.D. Pa. 1964) (expressly upholding General Electric and discussing supportive authority), aff’d per curiam, 382 U.S. 197 (1965). It has, however, been limited by subsequent decisions. See United States v. United States Gypsum Co., 333 U.S. 364, 400-02 (1948) (applying rule of reason approach to prohibit patentee from issuing identical licenses to all members of industry and using licensees to control price); United States v. Line Material Co., 333 U.S. 287, 310-12 (1948) (prohibiting patent holders from cross-licensing with other patent holders to fix price). As presently interpreted, General Electric authorizes a patentee to impose price restrictions on a single exclusive licensee but not upon several licensees. Newburgh Moire Co. v. Superior
Determined the proper scope of a patent requires that it be analyzed on a claim by claim basis. Nevertheless, some generalizations can be made. First, any attempt on the part of a patent holder to restrict competition in an unpatented product is illegal. For example, an agreement that a licensee sell no product similar to the patentee’s invention is a per se violation of section 1 of the Sherman Act.

Second, according to the “patent exhaustion doctrine,” a patent holder may not impose restrictions on an invention beyond its first sale. Thus, a restriction prohibiting purchasers of a patented product from incorporating it into merchandise they manufacture violates section 1 of the Sherman Act. Although this principle seems simple, difficulties arise when a patentee sells, not his invention, but rather the right to manufacture the invention. In United States v. General Electric Co., the Supreme Court drew a distinction between a license to manufacture and sell a patented product and a contract under which the patentee merely conveys a finished prod-

Moire Co., 237 F.2d 283, 291-92 (3rd Cir. 1956). Of the various restrictions that can be imposed, price restrictions are the most suspect. Id.

96. United States v. National Lead Co., 63 F. Supp. 513, 522-27 (S.D.N.Y. 1945). “While it has been held that the owner of a patent may license whom he will or refuse to license, it is now well settled that a license may not be used to extend the patent monopoly beyond its terms.” Id. at 524 (citations omitted).

97. Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100 (1969). Hazeltine Research granted a license to Zenith to use all of its domestic radio and television patents. Id. at 104. As part of the licensing package, Hazeltine required Zenith to pay royalties on non-patented products as well. Id. at 134. In remanding the case back to the court of appeals, the Supreme Court noted that “conditioning the grant of a patent license upon payment of royalties on products which do not use the teaching of the patent does amount to misuse.” Id. at 135. The Court concluded that “[t]here is nothing in the right granted the patentee to keep others from using, selling, or manufacturing his invention which empowers him to insist on payment not only for use but also for producing products which do not employ his discoveries at all.” Id. at 139. Because the lower court made no findings relating to these issues, the Supreme Court remanded the case to the court of appeals. Id. at 141; cf. United States v. Westinghouse Elec. Corp., 471 F. Supp. 532, 545-46 (N.D. Cal. 1978) (distinguishing Zenith Radio), aff’d, 648 F.2d 642 (9th Cir. 1981).


uct along with the right to resell it.\textsuperscript{102} Products covered under the former type of license are subject to restriction.\textsuperscript{103} Those covered under the latter type are not.\textsuperscript{104} It therefore appears that a patent is not exhausted until the product covered by the patent is sold; the mere sale of rights to the product is not sufficient.\textsuperscript{105}

2. \textit{Is the Restriction a Vertical or Horizontal Restraint?}

Once a restriction in a patent license is found to fall outside the scope of the patent, antitrust law operates in the same way as it would with any restraint.\textsuperscript{106} Because the parties will always have an

\begin{itemize}
\item \textsuperscript{102} \textit{Id.} at 485-94. In \textit{General Electric}, the Court reviewed two claims. \textit{Id.} at 478. In essence, the first claim charged that General Electric supplied its light bulbs to a vendor under a contract that contained a restriction on the resale price. \textit{Id.} at 476. The Court concluded that General Electric did not violate antitrust laws under this arrangement because it had not sold the patented product to independent sellers, but rather delivered the product to its own agents for resale. As such, General Electric could establish the price at which its agents sold the goods. \textit{Id.} at 484-88. The Court indicated in dicta, however, that General Electric would be prohibited from establishing the resale price of its goods once it sold them to an independent seller. \textit{Id.} at 487-88.

The second claim charged that General Electric violated antitrust law by granting a license to manufacture and sell its product, but restricting the price at which the licensee could sell the product. \textit{Id.} at 488-89. The Court determined that such a price fixing arrangement was within the rights of a patentee and did not violate antitrust law. \textit{Id.} at 489-94. The Court reasoned that, in granting the license to manufacture and sell the product, the patentee did not forfeit its property interests in the product. In contrast, when a patentee contracts to sell the finished product to an independent seller, the product is outside the scope of the patentee’s monopoly rights. \textit{Id.} at 489-94.

\item \textsuperscript{103} \textit{Id.} at 496.

\item \textsuperscript{104} \textit{Id.} at 489.

\item \textsuperscript{105} See \textit{id.} at 476-94 (explaining distinction between selling goods and granting license). The question of whether the manufacture of a product is complete is not always straightforward. For example, in \textit{United States v. Univis Lens Co.}, a corporation made and sold unfinished lenses for eyeglasses. 62 U.S. 1085 (1942). These “blanks” were then finished by the purchaser before resale to consumers. \textit{Id.} at 244. The Court held that the sale of the blanks exhausted Univis’s patent and that price restraints on the subsequent product constituted a violation of § 1 of the Sherman Act. \textit{Id.} at 252-54. In reaching its conclusion, the Court stated:

We think that all the considerations which support these results lead to the conclusion that where one has sold an uncompleted article which, because it embodies essential features of his patented invention, is within the protection of his patent, and has destined the article to be finished by the purchase in conformity to the patent, he has sold his invention so far as it is or may be embodied in that particular article. The reward he has demanded and received is for the article and the invention which it embodies and which his vendee is to practice upon it. He has thus parted with his right to assert the patent monopoly with respect to it and is no longer free to control the price at which it may be sold either in its unfinished or finished form.

\textit{Id.} at 251.

\item \textsuperscript{106} See, e.g., \textit{Mercoid Corp. v. Mid-Continent Inv. Co.}, 320 U.S. 661, 665-66
\end{itemize}
express agreement, the requirement in section 1 of the Sherman Act that there be a contract, combination or conspiracy is met. 107 Whether the agreement will ultimately be found to violate the Act depends largely upon the relationship between the patent holder and licensee. 108

If the patent holder and licensee can be characterized as competitors, then the restraints imposed by the license are "horizontal." 109 Any attempt to fix prices among competitors, by setting minimum or maximum resale prices or by limiting the supply of a product, is per se illegal. 110 Similarly, when the parties share a hori-

(1944) (discussing relationship between patent law and antitrust law). In Mercoid, the Court wrote:

The patent is a privilege. But it is a privilege which is conditioned by a public purpose. It results from invention and is limited to the invention which it defines. When the patentee ties something else to his invention, he acts only by virtue of his right as the owner of property to make contracts concerning it and not otherwise. He then is subject to all the limitations upon that right which the general law imposes upon such contracts. The contract is not saved by anything in the patent laws because it relates to the invention. If it were, the mere act of the patentee could make the distinctive claim of the patent attach to something which does not possess the quality of invention. Then the patent would be diverted from its statutory purpose and become a ready instrument for economic control in domains where the antitrust acts or other laws not the patent statutes define the public policy.

Id. at 666.

107. For the text of § 1 of the Sherman Act, see supra note 90.

108. For a discussion of these relationships, see infra notes 109-16 and accompanying text.

109. SULLIVAN & HOVENKAMP, supra note 39, at 155. A horizontal restraint of trade is defined as "[a] restraint of trade involving businesses at the same level of operation. [It] is an agreement between competitors to refuse to deal with one or more persons . . . ." BLACK’S LAW DICTIONARY 737 (6th ed. 1990). Horizontal restraints have included price fixing arrangements, market divisions or allocations, bid rigging and group boycotts. SULLIVAN & HOVENKAMP, supra note 39, at 155.

110. See generally SULLIVAN & HOVENKAMP, supra note 39, at 217-39 (presenting background material and cases on per se illegal price fixing arrangements). As an example, in Goldfarb v. Virginia State Bar, the Supreme Court addressed attempts to limit competition by setting minimum resale prices. 421 U.S. 773 (1975). Specifically, the Court ruled that a minimum fee schedule for lawyers, circulated by the state bar association, was subject to scrutiny under § 1 of the Sherman Act. Id. at 786-93. Likewise, in Arizona v. Maricopa City Medical Society, the Court examined attempts to limit competition by setting maximum resale prices. 457 U.S. 332 (1982). In this case, the Court ruled that maximum fee agreements between the Maricopa County Medical Society and another medical society were per se unlawful under § 1 of the Sherman Antitrust Act. Id. at 342-57. The Supreme Court has also confronted the issue of attempts to limit competition by limiting product supply. United States v. Socony Vacuum Oil Co., 310 U.S. 150 (1940). The Court reviewed agreements between a number of oil companies to control prices by controlling the amount of oil in the market at any time. Id. at 177-200. In reaching its conclusion, the Court stated that "[u]nder the Sherman Act, a combination formed for the purpose and with the effect of raising, depressing, fixing, pegging
horizontal relationship, any attempt to reduce competition by agreeing to divide a market into exclusive territories, or by otherwise allocating customers, is per se illegal.\footnote{111}

In contrast, "vertical" agreements are those between individuals or companies operating at different levels in the market.\footnote{112} For example, an agreement between a wholesaler and retailer, or a manufacturer and distributor, would be considered vertical.\footnote{113} As with horizontal agreements, attempts by a patent holder in a vertical agreement to control the price at which a licensee resells an invention are per se illegal.\footnote{114} Market divisions among vertical parties, however, are analyzed under the rule of reason.\footnote{115} Such agree-
ments will be upheld if they can be shown to have an effect that, on balance, promotes competition. 116

3. Did the Patent Holder Act Unilaterally in Imposing the Restriction?

At times, it may be in the patent holder's interest to limit competition among its licensees. For example, a number of companies with products competing in the same market may be able to maintain higher prices and achieve greater profits by jointly licensing one of the products and selling it at a fixed price. 117 The patent holder can coordinate the arrangement by granting manufacturing licenses with the restriction that the products manufactured be sold at a set price. 118 This may make the product more attractive to prospective licensees in that it "then comes in a competition-free wrapping." 119

In order to sustain an antitrust challenge, a plaintiff must show that there was concerted action by the alleged conspirators. Additionally, a plaintiff must show that these actions were part of an intentional scheme to reduce or eliminate competition. 120 Parallel conduct is not sufficient; there must be evidence that "concerted

save an otherwise objectionable regulation or the reverse; but because knowledge of intent may help the court to interpret facts and to predict consequences. 116

Id. at 49-50 n.15.


117. See United States v. Masonite Corp., 316 U.S. 265, 267 (1942). In this case, Masonite and other manufacturers of building materials entered into cross-licensing agreements that effectively made each manufacturer the agent of the other manufacturers. Id. Under such an "agency" agreement, the manufacturers could control the selling price of all goods in the market. Id. The Court ruled that such an agreement violated the Sherman Act. Id. at 282.

118. See, e.g., General Elec., 272 U.S. at 489-94 (ruling that agreement at issue did not violate antitrust law). Courts have drawn a distinction between restrictions on the price of goods produced under a manufacturing agreement and restrictions on the price of goods sold per se. Id. For further discussion of General Electric, see supra note 102.

119. United States v. Parke, Davis & Co., 362 U.S. 29, 47 (1960). In this case, Parke Davis established a policy under which it would not deal with customers who refused to follow its suggested resale price. Id. at 44-46. The Court reasoned that this policy made Parke Davis' products more attractive to prospective licensees, because such licensees would be assured that no other retailer was selling Parke Davis' goods at a lower price. Id. at 46-47. The Parke Davis policy was found to violate the Sherman Antitrust Act. Id. at 47-49.

120. See, e.g., Interstate Circuit, Inc., 306 U.S. 208, 221 (1939) (discussing what plaintiff must show in order to establish violation of Sherman Act).
action was contemplated and invited." Moreover, if the patent holder has an independent business reason for entering into the agreements, e.g., to protect the monopoly price, there is no conspiracy and no antitrust violation. Thus, patent holders are encouraged to make a point of dealing with prospective licensees on an individual and independent basis.

D. United States v. CIBA-Geigy

Many of the aspects of patent licensing described above are illustrated by United States v. CIBA-Geigy Corp. In 1958, CIBA-Geigy applied for a patent on hydrochlorothiazide ("HCT"), a diuretic used in the treatment of hypertension. Because of doubts concerning priority in the discovery of the drug, CIBA entered into an agreement giving Merck & Co., Inc. a nonexclusive, royalty-free license to make, use and sell the drug. The two companies marketed HCT at about the same time, but, because of Merck's superior drug marketing network, CIBA's prospects for competing effectively appeared dim.

In an effort to distinguish its product from Merck's, CIBA combined HCT with other drugs to produce "specialty products" with altered therapeutic properties. To compensate for Merck's larger sales force, CIBA sold bulk quantities of HCT to other com-

121. Id. at 226.
124. Id. at 1124.
125. Id. at 1122-23.
126. Id. at 1124-25. CIBA applied for its patent on September 29, 1958. Id. at 1124. Merck had discovered HCT after CIBA, but filed for a patent three days earlier. Id. Executives from the two companies met in December, 1958 and reached an oral agreement in which each company granted the other an unlimited license to sell HCT. Id. at 1125. This agreement was subsequently reduced to writing. Id. CIBA believed itself substantially ahead of Merck in development, and consequently, thought they could compensate for Merck's superior sales force by introducing the drug into the market well ahead of Merck. Id. This "lead time" was essential for CIBA because Merck was already strongly identified with diuretics in the relevant market. Id. at 1126.
127. Id. at 1125-26. Merck was a major player in the development of pharmaceutical products for many years. Id. at 1124. In 1953, Merck executed a synergistic merger with Sharp & Dome. Id. The companies formed a perfect complement because while Merck was a powerhouse in research and development, they lacked strong marketing. Id. Sharp & Dome lacked Merck's research capability, but had an effective marketing organization. Id. The merger resulted in one company with an exceptional ability to develop, manufacture and market its own products. Id.
128. Id. at 1126-27.
panies for reformulation. Although it wanted to take advantage of the sales capabilities of these companies, CIBA did not want products marketed that might compete with the HCT specialty products that CIBA itself was already selling. Consequently, CIBA refused to sell HCT to companies for reformulation unless they agreed to limit their marketing of the drug to product combinations specifically approved by CIBA.

In addition to selling large quantities of finished HCT to companies for resale, CIBA licensed certain companies to manufacture the drug. These agreements prohibited licensees from using the manufactured drug in combinations not approved by CIBA. The agreements also prohibited bulk sales of HCT by the licensee.

The government brought an antitrust action against CIBA based upon two distinct theories of illegality. First, the government alleged that the agreements restricting the use of HCT constituted a per se violation of section 1 of the Sherman Act. Second, the government alleged that in establishing the multiple licensing contracts, CIBA had conspired with licensees to allocate markets and boycott price cutters.

With regard to the first allegation, the court drew a distinction between CIBA's vending agreements and its manufacturing agreements.

129. Id. at 1127. The CIBA marketing policy was described in a December 1961 Memorandum to the CIBA Management Committee:

> This Company's policy, developed over the past three years, has been to supplement sales of the finished packaged forms by selling in bulk or granting licenses on specific products where, in the opinion of the Marketing Committee, such sales or licensing did not adversely affect sales of the same product in specialty form.

Id.

130. Id. at 1127-28.

131. Id. at 1126. CIBA entered into a bulk sale and licensing agreement with Abbott in 1959 and into agreements to sell bulk HCT to Warner-Lambert, G.D. Searle Co., SKF, RMI, McNeil, Carter and Lemmon between 1959 and 1961. Id. In addition, CIBA signed an agreement with Hoffman-LaRoche in 1965 for the bulk sale of HCT. CIBA granted manufacturing rights to Lilly to use and sell CIBA's cyclothiazide in specialty form in 1964. Id. at 1127.

132. Id. at 1129.

133. Id. at 1146. The court defined per se violations of § 1 of the Sherman Act as "agreements or practices which because of their pernicious effect on competition and lack of any redeeming virtue we conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused of the business excuse for their use." Id. at 1147 (citations omitted). In this case, the supply agreements constituted a pernicious antitrust violation because CIBA had used its monopoly position to insulate itself from horizontal competition by both selling bulk HCT to a number of drug companies and by competing with those companies in the formulation of the bulk chemical into ethical specialties. Id. at 1147.

134. Id. at 1146.
licenses.\footnote{Id. at 1149. For further discussion of such a distinction, see the discussion of \textit{United States v. General Electric}, supra notes 101-04 and accompanying text.} In the vending agreements, the initial sale of HCT by CIBA exhausted its patent rights. Therefore, the restrictions imposed by CIBA fell outside the scope of its patent and were subject to review under the Sherman Act.\footnote{\textit{CIBA-Geigy}, 508 F. Supp. at 1146-47.} The vending contracts between CIBA and the purchasers of bulk HCT had both horizontal and vertical aspects to them.\footnote{\textit{Id.} For a discussion of vertical and horizontal agreements, see supra notes 106-16 and accompanying text.} Although these contracts were reached between parties in a vertical, supplier-purchaser relationship, they were designed to limit horizontal competition between CIBA and its vendees.\footnote{\textit{CIBA-Geigy}, 508 F. Supp. at 1146.} The district court stated: “Where it is shown, as it is here, that a vertically imposed restraint is intended to suppress horizontal competition, the court will treat the agreement as the equivalent of a horizontal restraint of trade.”\footnote{\textit{Id.} at 1147.} Consequently, the restrictions were held to be per se illegal.\footnote{\textit{Id.} at 1147.}

In contrast to the vending agreements, the manufacturing licenses granted by CIBA were found to fall squarely within the scope of invention as set forth by the Supreme Court.\footnote{The proper standard for assessing the legality of a patent license is the “legitimate scope of the monopoly. . . . Thus the question arises whether the limitation[s] . . . contained in the [manufacturing] license transcended the bounds of CIBA’s patent on HCT. . . . In \textit{General Talking Pictures}, the distinct ‘fields of use’ were (a) the home use field, and (b) the commercial use field. How this division . . . differs in its competition effect from CIBA’s [restrictions] . . . is entirely unclear.” \textit{Id.} at 1150-51.} Because the manufacturing restrictions fell within CIBA’s patent monopoly, the court found them to be protected from attack under antitrust law.\footnote{\textit{Id.}} With regard to the government’s allegation that CIBA had conspired with its licensees to divide the HCT market and boycott price cutters, the court found that the government had failed to show intent on the part of CIBA.\footnote{\textit{Id.}} The district court stated:

The government has shown a series of agreements between CIBA and several other companies and, it has shown that, by and large, these agreements contained similarly restrictive provisions. However the evidence is insufficient to support a finding of the knowing concertedness of action, the dedication to a common end, which is essen-

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tial to an illegal combination or conspiracy. . . . More is
required to prove conspiracy than the parallel acceptance
by the vendees of CIBA's unilaterally imposed restraints,
and nothing more than this legitimately can be inferred
from the present proofs. 144

E. Acquisitions and Patent Pools

In a patent driven industry, companies may attempt to increase
profits or protect their market position by accumulating patents or
by combining their patents with those of other companies. The
consequences of each of these activities in terms of antitrust law is
considered separately below.

1. Patent Acquisitions

Patent acquisition may occur through internal development,
purchase or merger. 145 The accumulation of patents through a
company's own research efforts creates no antitrust problems what-
soever. 146 Regardless of their market position, firms are free to in-
ovate and aggressively compete for patent rights to new
products. 147 Similarly, the acquisition of patents from third parties

144. *CIBA-Geigy*, 508 F. Supp. at 1148-49 (citation omitted).
145. This may be distinguished from "patent pools" in which patent holders
combine their rights but retain ownership of the patents.
*Grinnell* described the second element under § 2 of the Sherman Act as "the willful
acquisition or maintenance of that [monopoly] power as distinguished from
growth or development as a consequence of a superior product, business acumen,
or historic accident." *Id.* at 570-71.
1979), cert. denied, 444 U.S. 1093 (1980). In this case, Berkey sued Kodak for anti-
trust violations primarily arising from Kodak's introduction of the 110 photo-
graphic system, including the "Pocket Instamatic" camera and new color print
film, Kodacolor II. *Id.* at 268. Other charges were wide-ranging and embraced
many of Kodak's activities of the preceding decade and beyond. *Id.* The Second
Circuit noted that a monopoly is not per se illegal. *Id.* at 273. Antitrust laws
are designed to enhance competition. Consequently, they should not be used against
a competitor simply because it was successful. *Id.* The Act does not condemn a
competitor who succeeds due to superior skill and intelligence. *Id.* at 274. A mo-
nopoly may not, however, be acquired or maintained through improper means.
*Id.* For example, the use of monopoly power to gain a competitive advantage in
acquiring new markets is a violation of § 2, whereas the use of inherent advantages,
such as more efficient production, greater ability to develop complementary prod-
ucts and reduced transaction costs are not. *Id.* at 276; *see also* California Computer
Prod. Inc. v. *IBM Corp.*, 613 F.2d 727, 744 (9th Cir. 1979) (stating that antitrust
laws do not restrict manufacturers' right to develop new products); United States v.
Aluminum Co. of Am., 148 F.2d 416, 423 (2d Cir. 1945) (noting that antitrust laws
do not forbid growth even when it results in monopoly).
is not "in and of itself illegal." Nevertheless, under certain circumstances, such acquisitions may constitute a violation of either section 2 of the Sherman Act or section 7 of the Clayton Act.

a. Patent Acquisition as a Violation of Section 2 of the Sherman Act

In *United States v. Grinnell*, the Supreme Court set forth the elements necessary to establish monopolization:

The offense of monopoly under section 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.

In establishing a section 2 violation, plaintiffs are aided by two presumptions. First, there is a presumption of market power where a company has a large market share. This presumption may be rebutted by evidence that the company is, in fact, unable to control price or product output. Second, companies are presumed to

148. Automatic Radio Mfg. Co. v. Hazeltine Research Inc., 339 U.S. 827, 834 (1950). The acquisition of patents only becomes illegal in cases where there is a conspiracy to restrict the production of unpatented or other goods. *Id.* at 832.

149. For the language of § 2 of the Sherman Act, see *supra* note 10. For the language of § 7 of the Clayton Act, see *infra* note 156. Under some circumstances, § 1 of the Sherman Act may also be used. *See, e.g.*, McDonald v. Johnson & Johnson, 537 F. Supp. 1282 (D. Minn. 1982), *aff’d in part, vacated in part*, 722 F.2d 1370 (8th Cir. 1983), *cert. denied*, 469 U.S. 870 (1984). An inverse situation was presented in this case. Johnson & Johnson acquired the StimTech corporation and then prevented StimTech from developing new products. *Id.* at 1332. The court found Johnson & Johnson’s suppression of StimTech a violation of § 1 of the Sherman Act. *Id.* at 1334. For an in-depth examination of *McDonald v. Johnson & Johnson*, see *infra* notes 183-222 and accompanying text. For the language of § 1 of the Sherman Act, see *supra* note 90.


151. *Id.* at 570-71. The above text deals only with claims of monopolization. A claim of "attempted monopolization" may also be brought under § 2. For a discussion of the elements required to establish such a claim in the context of an acquisition case, see *McDonald*, 537 F. Supp. at 340-46. For an examination of *McDonald*, see *supra* notes 183-222 and accompanying text.

152. United States v. Grinnell Corp., 384 U.S. 563, 578 (1966). Even a company having a 100% market share may not have market power if there are no barriers to entry into the market. *See, e.g.*, United States v. Syufy Enter., 712 F. Supp. 1386, 1401 (N.D. Cal. 1989), *aff’d*, 903 F.2d 659 (9th Cir. 1990). For a discussion of the factors that go into the determination of a product market, see 1984 Dept. of Justice Merger Guidelines, 49 Fed. Reg. 26823. The guidelines define a market as "a group of products and a geographical area such that a hypothetical firm that is the only present and future seller of those products in that area would possess market power." *Id.* Market power is defined as the power to control prices
intend the "necessary and direct consequences of their acts." Therefore, the mere fact that a defendant's activities had an anticompetitive effect may be all that is needed to establish intent. The net effect of these presumptions is that the acquisition of patents by a firm which already occupies a dominant market position will usually constitute a violation of section 2 of the Sherman Act.

b. Patent Acquisition as a Violation of Section 7 of the Clayton Act

Under section 7 of the Clayton Act, one company may not acquire the assets of another company where "the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly." Patents are a form of property constituting by restricting output. Id. Even if a company is the only supplier of a product, it does not have market power if attempts to raise prices drive buyers elsewhere. Id.

See, e.g., Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 602 (1985) (stating that intent can be inferred from attempt to monopolize); United States v. United Shoe Mach. Corp., 110 F. Supp. 295, 342 (D. Mass. 1953) (identifying one of three approaches to finding intent under § 2 as inferred by mere fact of monopolization), aff'd, 347 U.S. 521 (1954). The presumption may be rebutted if the defendant can show that the anticompetitive consequences of an act could not have been foreseen at the time that it occurred. SCM v. Xerox Corp., 645 F.2d 1195, 1205 (2d Cir. 1981), cert. denied, 455 U.S. 1016 (1982). The court in SCM found the patent would be "seriously undermined" if the threat of antitrust liability attached at the time a patent was acquired and before the existence of a relevant market or the commercialization of the patented product. Id.

See, e.g., Kobe Inc. v. Dempsey Pump Co., 198 F.2d 416 (10th Cir. 1952), cert. denied, 344 U.S. 837 (1952). Kobe involved a monopoly in the field of hydraulic pumps for oil wells. Id. at 418. The court noted that intent with respect to monopolies need not include specific intent in the criminal sense. Id. at 423. Unification of power and control over a commodity can create a prima facie case of intent to exercise illegal restraints and monopolize. Id. Evidence leading to a presumption of intent in Kobe included: evidence that every important patent relating to the field had been acquired by Kobe; that no other similar pump was manufactured until Dempsey put one on the market; and that Kobe widely publicized the number of patents it owned. Id. at 423-24; see also United States v. Besser Mfg. Co., 96 F. Supp. 304 (E.D. Mich. 1951), aff'd, 343 U.S. 444 (1952). In Besser, the district court found that a monopoly existed because two closely related companies had 65% of the dollar value of the industry and their nearest competitor had less than 8%. Id. at 307. Intent was presumed based on Besser's history of purchasing existing or prospective competitors, and on the existence of a contract under which Besser and its largest competitor gave one another exclusive rights to all future developments of two particularly fertile inventors. Id. at 308-10.

Clayton Act, ch. 323, § 7, 38 Stat. 731 (1914) (current version at 15 U.S.C. § 18 (1994)). In its entirety, the relevant language of § 7 of the Clayton Act reads:

No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the
the assets of a company and their acquisition is therefore subject to review under section 7. Analysis under this provision is aimed at predicting the likely effect of an acquisition on future competition within a market and is heavily influenced by the structure of the market at the time of acquisition.

In a decentralized industry, where market share is relatively evenly divided among many firms, courts make a broad-based inquiry into factors such as the market share of a firm after acquisition, industry trends, and whether there are barriers to entry into the market. In a concentrated market, an acquisition resulting in a firm controlling an unusually large share of the market assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

Id.

157. United States v. Lever Bros. Co., 216 F. Supp. 887, 889 (S.D.N.Y. 1963). The court held that patents were assets because both the patent itself and the ultimate finished product were valuable. Id.

158. Analysis under §7 of the Clayton Act is prospective in the sense that courts must predict whether future anticompetitive effects are likely to result from an acquisition. This may be contrasted with the retrospective analysis of § 2 of the Sherman Act where courts must determine whether anticompetitive effects have already occurred. See generally United States v. E. I. duPont de Nemours & Co., 353 U.S. 586, 595 (1957) (requiring government to prove likelihood that competition will be foreclosed in order to support § 7 violation); Xerox Corp., 645 F.2d at 1208 (noting that § 2 of Sherman Act requires examination of power party already possesses in relevant market before imposing limitations on patent rights).

159. Brown Shoe Co. v. United States, 370 U.S. 294 (1962). The Brown Shoe Court found persuasive evidence of trends toward vertical integration and the tendency for acquiring manufacturers to become the primary suppliers for their acquired outlets. Id. at 332. The corollary of such trends was the foreclosure of independent manufacturers from those markets. Id. Even in cases where an industry is composed of a large number of manufacturers and retailers, the Brown Shoe Court would consider such trends an appropriate means of predicting future results. Id. at 333. There can be a violation of §7 even when the post-acquisition firm has only a small market share. For example, a violation could be found if the market showed a trend toward becoming more concentrated. See, e.g., United States v. Von's Grocery Co., 384 U.S. 270, 278 (1966) (finding that merger between two already thriving companies violates §7 when it occurs in market characterized by continuous trend toward fewer owner-competitors).

160. An example of a concentrated market would be one where the four leading firms have a combined market share of 60% or more. See United States v. Philadelphia Nat'l Bank, 374 U.S. 321, 366 (1963). This case involved a proposed merger between Girard Bank and Philadelphia National Bank (PNB). Id. at 331. The Court found that the merger of these two banks would result in the remaining single bank controlling at least 30% of the commercial banking business in the four-county Philadelphia Metropolitan area. Id. at 364. The Court defined the relevant market narrowly, looking to "where, within the area of competitive overlap, the effect of the merger on competition will be direct." Id. at 357.
(e.g., greater than thirty percent) is presumptively illegal. This presumption may be rebutted if a defendant can present a convincing argument that the acquisition is, in fact, unlikely to affect competition or that its procompetitive effects are likely to outweigh its anticompetitive effects. Both patent acquisitions and the acquisition of exclusive rights under a patent have been found to violate the Clayton Act.

161. Id. at 365. In finding that a 30% market share posed a risk of undue concentration, the Court looked to three factors. First, the Court noted that numerous commentators had suggested that percentages lower than 30% were sufficient to establish prima facie illegality. Id. at 364 & n.42. Second, the Court noted that numerous previous cases found illegality despite the fact that the acquiring company accounted for less than 30% of the market share. Id. at 366. Finally, the Court found that the merger of Girard and PNB would result in the merged bank and its largest competitor together controlling 59% of the relevant market. Id. at 365.

162. See, e.g., United States v. General Dynamics Corp., 415 U.S. 486, 498 (1974). In General Dynamics, the government offered statistical evidence concerning market share and market concentration sufficient to establish its case under ordinary circumstances. Id. at 497. However, the Supreme Court held that pertinent additional factors existed that justified finding that a substantial lessening of competition had not occurred and was not threatened. Id. at 498. The Court noted that Congress had plainly indicated that mergers were to be viewed functionally, in the context of the particular industry. Id. Here, the district court properly considered evidence concerning the structure, history and probable future of the coal industry before finding that there was no substantial probability of anticompetitive effects from the merger. Id.

163. See, e.g., United States v. Citizens & S. Nat'l Bank, 422 U.S. 86, 119 (1975). This case involved the elimination of Georgia's anti-branching law which had previously prevented banks located in cities from operating branches in suburban areas. Id. at 89. Subsequently, Citizens & Southern National Bank (C & S National) formed Citizens & Southern Holding Company. (C & S Holding) for the purpose of developing de facto branch banks in the suburbs of Atlanta. Id. When Georgia amended its banking laws, C & S National implemented steps to acquire the de facto branch banks. Id. at 90. The Court found that, contrary to the government's assertion that such acquisition was a violation of both the Sherman and Clayton Acts, it was the Georgia anti-branching law that was anticompetitive. Id. at 118. This was because the effect of the law was to make potential bank customers in rural areas a captive market for small local banks. Id. Thus, by making new banking options available to suburban Atlanta, the acquisitions were actually procompetitive. Id. at 119.

164. Patent acquisitions have, on occasion, been found to violate the Clayton Act. See, e.g., Dole Valve Co. v. Perfection Bar Equip., Inc., 311 F. Supp. 459, 463 (N.D. Ill. 1970) (noting that patents may be considered part of the assets of corporation for § 7 purposes). The acquisition of exclusive rights under a patent has also been found to violate the Clayton Act. See, e.g., United States v. Columbia Pictures Corp., 189 F. Supp. 153, 181-83 (S.D.N.Y. 1960). Among other issues, the court in Columbia Pictures decided that an exclusive, limited license under copyright was an asset within the meaning of § 7 of the Clayton Act. Id. at 183. The court found the terms of the statute to be generic, encompassing a wide variety of transactions. Id. at 182. The concern of the statute emphasizes the economic effect of the transfer rather than the character of the transfer itself. Id. Thus, the court found that for purposes of § 7, an acquisition could be a "purchase, assignment, lease, license, or otherwise." Id. Contra Benger Lab. Ltd. v. R.K. Laros Co.,
2. Patent Pools (Cross-Licensing Agreements)

Patent pools occur when two or more patent holders form an agreement in which they combine their patent rights for a common purpose. Such agreements may be formed for legitimate reasons such as avoiding litigation,\(^{165}\) gaining access to technology necessary for new product development\(^{166}\) or providing a package of related patents for licensees.\(^{167}\) Nevertheless, the cross-licensing agreements that typically form the basis of patent pools can, in extreme cases, provide a means for controlling competition within an entire industry.\(^{168}\)

Because patent pools may have either procompetitive or anticompetitive effects, they are analyzed under the rule of reason.\(^{169}\)

\(^{165}\) Standard Oil Co. (Ind.) v. United States, 283 U.S. 163, 171 (1931). The patents in question in *Standard Oil* contained provisions for the division of royalties. *Id.* The government alleged that these provisions were unlawful under the Sherman Act because they constituted evidence of an intent to form a monopoly. *Id.* The Court found to the contrary, noting that such provisions represent an agreement designed to avoid further litigation. *Id.* Contra United States v. Singer Mfg. Co., 374 U.S. 174, 197 (1963) (stating that patent holder cannot escape prohibitions of Sherman Act by aggregating patents).

\(^{166}\) See, e.g., International Mfg. Co. v. Landon, Inc., 336 F.2d 723, 730 (9th Cir. 1964), *cert. denied, 379 U.S. 988* (1965). This case involved the mandatory package licensing of two patents in a pool in which the patent holders agreed to license the patents collectively and share royalties according to a set formula. *Id.* at 729. The trial court found that the two patents covered only a single article in the sense that manufacturers could not use one patent without infringing the other. *Id.* The court distinguished this agreement from "tying arrangements," which involve the forced purchase of a second commodity distinct from the first. *Id.* at 730.

\(^{167}\) See, e.g., Baker-Cammack Hosiery Mills, Inc. v. Davis Co., 181 F.2d 550, 570 (4th Cir.) (combining complementary patents is not illegal unless combination is used for improper purposes), *cert. denied, 340 U.S. 824* (1950). *See generally* Broadcast Music, Inc. v. Columbia Broadcasting Sys., Inc., 441 U.S. 1, 23-24 (1979) (explaining that blanket license provides acceptable way for large part of relevant market to gain access to copyrighted musical compositions and performance rights). Although *Broadcast Music* involved the blanket licensing of copyrights, the principles set forth are equally applicable to patent licensing.

\(^{168}\) Hartford-Empire Co. v. United States, 323 U.S. 386, 406 (1945). Here, 12 corporations and 101 individuals were named defendants in a suit charging conspiracy and intent to monopolize interstate and foreign commerce by acquiring patents covering the manufacture of glass making machinery. These patents effectively excluded others from a fair opportunity to engage in the manufacture and distribution of glass products. *Id.* at 992. In upholding the district court's finding that the defendants participated in an illegal conspiracy, the Court noted that the proper test is whether the alleged acts regulated and suppressed competition in the industry. *Id.* at 406.

\(^{169}\) Standard Oil, 283 U.S. at 171. The test the Court applied was whether the available advantages were open on reasonable terms to all manufacturers desiring to participate. *Id.* If so, then the arrangement promotes rather than restrains competition. *Id.*
Two crucial factors go into determining whether a particular patent pool violates antitrust law.\textsuperscript{170} First, courts examine whether the patents, when combined, lead to market power. Early court decisions suggested that no violation of antitrust law occurs without a showing that the pooled patents control a dominant share of a market.\textsuperscript{171} More recent decisions have stated that while dominant market share remains an important indicator of market power,\textsuperscript{172} it is not an absolute requirement.\textsuperscript{173} Second and most importantly, courts analyze whether a particular patent pool has a procompetitive or an anticompetitive effect. This analysis is complicated by the fact that two distinct markets are associated with pooled patents: (1) a market for the products covered by the patents; and (2) a market for the licensing of the patents themselves. In addition, courts must consider the economic relationship of the patents involved. Three types of relationships are possible; the patents may be competing, complementary or blocking.\textsuperscript{174}

a. Competing Patents

Competing patents are those that licensees would consider to

\textsuperscript{170} Most typically, agreements are analyzed under § 1 of the Sherman Act. For the language of § 1 of the Sherman Act, see \textit{supra} note 90.

\textsuperscript{171} \textit{Standard Oil}, 283 U.S. at 174.


\textsuperscript{173} \textit{See, e.g., Automatic Radio Mfg. Co. v. Hazeltine Research, Inc.}, 339 U.S. 827, 834 (1950) (noting that mere accumulation of even large number patents is not per se illegal); \textit{see also Mason City Tent & Awning Co. v. Clapper}, 144 F. Supp. 754, 767 (W.D. Mo. 1956) (finding § 2 violation even though licensees continued to compete); \textit{United States v. Associated Patents, Inc.}, 134 F. Supp. 74, 82 (E.D. Mich. 1955) (finding that combined effect of patent pooling agreement imposed unreasonable restraint on trade). One reason why the market power of pooled patents might not be reflected in a dominant market share is that license fees on the patents may have been made so prohibitively high that other, inferior processes or products have been made competitive. Roger B. Andewelt, \textit{Analysis of Patent Pools Under the Antitrust Laws}, 53 \textit{Antitrust L.J.} 611, 623-26 (1984). Andewelt points to the inherent difference between intellectual property and more traditional assets to explain why market share is of less significance in analyzing the competitive affect of patent pools. \textit{Id.} at 624. For example, a company seeking to increase its production of conventional products will inevitably face some increased costs and delays. \textit{Id.} Market share, therefore, is a good indicator of short-term supply. \textit{Id.} Intellectual property, on the other hand, can be sold repeatedly without being used up and the cost of new sales may be only marginally greater than the cost of providing individualized licenses. \textit{Id.} Under these circumstances, a company can easily expand to dominate an entire market. Consequently, market share may not be a reliable indicator of future market power. \textit{Id.} at 625.

\textsuperscript{174} \textit{See Andewelt, supra} note 173, at 612-14 (identifying patent relationships as competing, complementary and blocking).
be effective substitutes for one another.\textsuperscript{175} For example, suppose Company A has a patent on a process for producing X and Company B has a patent on an alternative process. Licensees are likely to compare the characteristics of each process and license either one or the other. If Company A's process is less efficient than B's, it may attempt to attract licensees by charging a lower royalty rate or by offering better support services. Ultimately, this competition in the patent license market should be reflected in the product market.

Licensing restrictions imposed on pooled competing patents, which together may exert market power, are very likely to have an anticompetitive effect.\textsuperscript{176} Suppose that in the above example A and B join together and refuse to license either patent below a specified price. If their patented processes represent the only reasonable means of producing X, licensees could be forced to pay higher royalties than if the patentees had remained in competition. Pooling under such circumstances would be a clear violation of the Sherman Act.\textsuperscript{177}

b. Complementary Patents

Complementary patents act synergistically, each increasing the value of the other.\textsuperscript{178} Suppose Company A has a patent on drug X which is safe and effective but which must be given intravenously

\textsuperscript{175} Id. at 613.

\textsuperscript{176} At times, patent holders may enter into a cross-licensing agreement which gives each company access to the other's inventions but which imposes no restrictions on how patent rights are licensed or on how the inventions are used. See, e.g., United States v. CIBA-Geigy Corp., 508 F. Supp. 1118, 1125 (D.N.J. 1976) (illustrating agreement under which each participating company received non-exclusive, non-transferable license under any patent issued on pending patent applications). However, even these arrangements can be anticompetitive if the pool involves a large segment of an industry or requires its members to contribute future patents to the pool. See, e.g., United States v. Manufacturers Aircraft Assoc., Inc., 1976-1 Trade Cases ¶ 60,810 (S.D.N.Y. 1975) (ordering aircraft manufacturers' association and its members to grant licenses for aircraft patents upon written request); United States v. Automobile Mfrs. Assoc., 1969 Trade Cases ¶ 72,907 (C.D. Cal. 1969) (prohibiting four automobile manufacturers and their trade association from, among other things, exchanging patent rights covering future inventions because their intent was to suppress development of pollution control devices).

\textsuperscript{177} See, e.g., United States v. General Instrument Corp., 87 F. Supp. 157, 195 (D.N.J. 1949). In General Instrument, three principal manufacturers of variable condensers formed a patent holding company. Id. at 167. The court found that the manufacturers illegally used the holding company to pool patents and effectively fix prices industry wide. Id. at 179. In addition, evidence was submitted revealing that the holding company charged exorbitant royalties and inequitably refused licenses in an effort to dominate the industry. Id. at 194-95.

\textsuperscript{178} Andewelt, supra note 173, at 613.
and in multiple doses over a period of days. Under such circum-
stances, physicians might consider X to be unsuitable for all but
hospitalized patients. Company B discovers and patents product Y
which, when combined with X or other intravenous drugs, allows
them to be absorbed through the skin. X and Y are complementary
in that they have made each other more useful and more valuable.
Unlike the case for competing patents, a party who obtains a license
to the patent rights of X will, if anything, be more likely to license Y.
Patent pools involving complementary patents are therefore likely
to be procompetitive.179

c. Blocking Patents

Blocking patents occur in situations where a pioneer patent is
owned by one inventor or assignee and an improvement patent is
owned by another.180 The latter patent cannot be practiced without
infringing the former. For example, suppose Company A has a
patent on drug X. Company B discovers and patents a process for
making X which is far more efficient than the process used by A.
Although B can prevent A from using the patented process, it can-
not exercise the patent without infringing upon A’s right to ex-
clude others from making X.181 A’s patent is said to be “blocking”
and B’s patent is said to be “blocked.” As with complementary pat-
ten arrangements involving blocking patents will usually
be procompetitive.182

F. McDonald v. Johnson & Johnson183

Research in the late 1960s and early 1970s indicated that pain

179. Id. Another example is a patent covering the manufacture of pen refills
and a patent covering the manufacture of the outside pen structure. Id. Because
these patents are interrelated, access to one increases the demand for the other.
Id.

180. Id. at 613-14.
181. 35 U.S.C. § 271 (1988). Section 217(c) provides:
Whoever sells a component of a patented machine, manufacture, combi-
nation or composition, or a material or apparatus for use in practicing a
patented process, constituting a material part of the invention, knowing
the same to be especially made or especially adopted for use in an in-
fringement of such patent . . . shall be liable as a contributory infringer.
Id.

182. See, e.g., International Mfg. Co. v. Landon, Inc., 336 F.2d 723, 729 (9th
Cir. 1964), cert. denied, 379 U.S. 988 (1965). This case involved the mandatory
package licensing of two patents so closely related that no commercially feasible
device could be manufactured unless the patents were combined. The Ninth Cir-
cuit stated: “In a case involving blocking patents [a patent pooling] arrangement
is the only reasonable method of making the invention available.” Id. at 729.

183. 537 F. Supp. 1282 (D. Minn. 1982), aff’d in part, vacated in part, 722 F.2d
could be controlled by the electrical stimulation of nerves at the pain site.\textsuperscript{184} In 1971, Norman Hagfors founded StimTech, a company devoted to the development and commercialization of a transcutaneous electric nerve stimulator ("TENS") for controlling pain.\textsuperscript{185} In the following two years, he was joined by Stanley McDonald and Clayton Jensen.\textsuperscript{186} The company quickly took a leading position in TENS technology, developing the first therapeutically effective solid state device.\textsuperscript{187} Clinical studies indicated that TENS technology could be used in the treatment of headaches, back pain, post-surgical pain and phantom limb pain.\textsuperscript{188}

Realizing that it would take several years for TENS therapy to gain medical acceptance, StimTech searched for an interim source of income.\textsuperscript{189} After considerable effort, the company obtained a license to distribute pacemakers made by Devices, Ltd.\textsuperscript{190} Nevertheless, the corporate partners in StimTech determined that they would need an additional $7,000,000 to perfect and market their

\textsuperscript{1370} (8th Cir. 1983), \textit{cert. denied}, 469 U.S. 870 (1984). The case illustrates how antitrust laws act to discourage the use of acquisitions to suppress competition.

\textsuperscript{184}. \textit{Id.} at 1289-90. In 1965, two medical doctors published a paper entitled "The Gate Theory of Pain" which described a surgically implantable device that prevented the transmission of pain signals to the brain. \textit{Id.} at 1289. This paper sparked an interest in the development of such a device. \textit{Id.} Thus, in the late 1960s, Mr. Hagfors, Dr. Donlin Long, a neurosurgeon at the University of Minnesota, and several other experts in the field of pain control created a device that, when implanted, would stimulate nerves to alleviate certain kinds of pain. \textit{Id.}

\textsuperscript{185}. \textit{Id.} at 1289.

\textsuperscript{186}. \textit{Id.} at 1290-91.

\textsuperscript{187}. \textit{Id.} at 1289-90. Mr. Hagfors, in conjunction with Dr. Long, created the first modern solid state TENS device. \textit{Id.} at 1290. StimTech was the dominant company in the TENS industry and controlled approximately 25% to 30% of sales. \textit{Id.} at 1332.

\textsuperscript{188}. \textit{Id.} at 1291. During 1972, StimTech was involved in product research and market evaluation in an effort to expand its products and its sales territory. \textit{Id.} In clinical studies, TENS had already proven to be an effective alternative to drugs for the treatment of headaches, back pain, post-surgical pain and phantom limb pain. \textit{Id.} Unlike strong painkillers, TENS had virtually no side effects. \textit{Id.} The clinical studies also suggested that TENS technology might be applied to other areas, such as sports medicine. \textit{Id.}

\textsuperscript{189}. \textit{Id.} at 1290-91. Usually when a company is promoting a new drug or device, it seeks a physician’s endorsement to make customers feel more comfortable about using the product. \textit{Id.} at 1290. In order to inform physicians about the product, however, a company must provide research articles disclosing experiments and patient surveys. \textit{Id.} This is not only time consuming, but extremely expensive. \textit{Id.} StimTech planned to sell heart pacemakers, a well-accepted product, in order to fund research on the TENS device. \textit{Id.}

\textsuperscript{190}. \textit{Id.} at 1291. McDonald and Hagfors began searching for a foreign manufacturer of pacemakers in the hope of establishing a licensing arrangement. \textit{Id.} at 1290. In October of 1971, Hagfors and McDonald reached an agreement under which StimTech would distribute and manufacture pacemakers for Devices, Ltd., an English company, in the United States. \textit{Id.} at 1291.
product. They were contacted by a representative from Johnson & Johnson, a leading company in the sale of analgesics for controlling pain. Johnson & Johnson proposed to use its resources to promote the rapid development and commercialization of TENS technology in return for an ownership interest in StimTech.

During negotiations, Johnson & Johnson loaned StimTech approximately $300,000 in urgently needed capital. Immediately before a final agreement was reached, StimTech learned that Johnson & Johnson had purchased Devices, Ltd. With StimTech's only significant source of income now controlled by Johnson & Johnson and $300,000 debt also owing to Johnson & Johnson, McDonald, Hagfors and Jensen accepted an agreement under which they relinquished all control of the company. Furthermore, each

191. Id. at 1292.
192. Id. at 1292-93. From mid-1972 to mid-1973, StimTech contacted numerous investors in an attempt to provide the remaining $7 million. Id. During this time, Dr. McConnell, the Director of Corporate Development for Johnson & Johnson, approached StimTech. Id.
193. Id. at 1297.
194. Id. at 1294-97. When Dr. McConnell began negotiating for acquisition of StimTech in the summer of 1973, he informed StimTech that he was also interested in acquiring Devices, Ltd. Id. at 1294. At this time, Hagfors saw no problem with Johnson & Johnson acquiring both companies. He even wrote a letter to the chairman of Devices, Ltd. stating that the Johnson & Johnson acquisition would be a great opportunity. Id. at 1296. Johnson & Johnson and StimTech negotiated various details of the acquisition from the summer of 1973 to May 1974. Id. at 1296-97. On May 9, 1974, StimTech was informed that the $12 million earn-out proposal for acquisition of StimTech would be presented to Johnson & Johnson on May 10, 1974. Id. at 1297. StimTech was unaware that Johnson & Johnson was extremely close to closing the deal on the acquisition of Devices, Ltd. Id. A proposal for acquisition of StimTech for $8 million rather than the negotiated $12 million earn-out was presented to Johnson & Johnson's Executive Committee and on May 20, 1974, Mr. Anderson from Johnson & Johnson presented a take-it-or-leave-it offer of $6.5 million to StimTech. Id. at 1298. At the same time he notified StimTech that Johnson & Johnson's acquisition of Devices, Ltd. had been successful. Id.
195. Id. at 1297-1300. By acquiring Devices, Ltd., Johnson & Johnson had the power to cease Devices' production of pacemakers, thereby eliminating StimTech's source of funds for the development of TENS. Id. at 1297-98. This fact, combined with StimTech's inability to repay the borrowed $300,000, made StimTech realize that its negotiating position with Johnson & Johnson had become extremely difficult. Id. at 1297-98. As a result, StimTech agreed to the acquisition. Id.

Mr. Anderson, the individual who took over negotiations after Dr. McConnell, maintained that Johnson & Johnson had no intention of competing with StimTech nor disposing of StimTech's business. Nevertheless, Anderson refused StimTech's proposed contract provisions under which Johnson & Johnson would agree not to compete with TENS devices or pacemakers and that it would not sell or dispose of StimTech during the earn-out period. Id. at 1299. In addition, Anderson refused to place in the agreement the specific representations that Johnson & Johnson had made to StimTech over the period of negotiations, but merely stated in the contract that the agreement was based on "mutual trust." Id. at 1299.
of the partners signed an agreement making them employees of StimTech and prohibiting them from competing with the company for a period of five years.\footnote{196}

After acquiring StimTech, Johnson & Johnson adopted a policy of keeping the company solvent but suppressing any actions that might provide it with more than a subsistence level of income. Among other things, Johnson & Johnson prohibited advertising of StimTech devices and squelched attempts by McDonald and others to solicit outside support or support from other Johnson & Johnson subsidiaries.\footnote{197} In addition, Johnson & Johnson imposed price restrictions that deprived StimTech of any significant profits and distribution restrictions that effectively shut down much of the world market.\footnote{198}

Johnson & Johnson established a line of credit that StimTech could use to pay its debts and avoid bankruptcy. Keeping StimTech alive, if not healthy, effectively discouraged other companies from developing TENS technology. Small competitors in the TENS field viewed StimTech's association with Johnson & Johnson as giving it access to tremendous resources and the ability to quickly copy and market any innovations that a competitor might introduce.\footnote{199} Because of this perceived power, competitors adopted a policy of following safely behind StimTech and trying to hold on to the small percentage of the TENS market they already possessed.\footnote{200}

During the same period in which Johnson & Johnson was suppressing the development of TENS, it was heavily promoting the sales of its analgesics, Tylenol and Zomax. As a result of these efforts, Tylenol with codeine rose from 127th in prescription sales in 1971 to number one in 1980.\footnote{201} Also by 1980, Tylenol had become

\footnote{196. \textit{Id.} On September 20, 1974, McDonald, Hagfors and Jensen signed three year employment contracts. \textit{Id.} Each also signed an agreement not to compete in either the pacemaker industry or the pain control industry for five years, except as employees of StimTech. \textit{Id.}}

\footnote{197. \textit{Id.} at 1332, 1334-35.}
\footnote{198. \textit{Id.} at 1333-34.}
\footnote{199. \textit{Id.} at 1333-35.}
\footnote{200. \textit{Id.} at 1335.}
\footnote{201. \textit{Id.} at 1310.}
the leader in the over-the-counter analgesics market with a share greater than the next three competitive drugs combined.\textsuperscript{202}

In 1979, a jury in the District Court for the District of Minnesota found that Johnson & Johnson had violated both sections 1 and 2 of the Sherman Act in its dealings with McDonald, Hagfors and Jensen.\textsuperscript{203} On motion for a new trial, the court reviewed the jury's findings and, as summarized below, affirmed its decision.\textsuperscript{204}

1. Johnson & Johnson as Liable Under Section 1 of the Sherman Act

Acquisition cases do not usually involve claims based on section 1 of the Sherman Act. If one competitor voluntarily sells its assets to another, it has, by choice, withdrawn from competition and does not have standing to bring an antitrust action.\textsuperscript{205} Here however, there was clear evidence that StimTech did not intend to withdraw from competition at all. Johnson & Johnson had promised McDonald and his partners that it would promote StimTech's technology and that the acquisition would actually allow the company to compete more effectively. The jury found that Johnson & Johnson sub-

\textsuperscript{202}. \textit{Id.} Gross sales of Tylenol from 1975 to 1979 amounted to $200,000,000, representing a net profit of $134,000,000. \textit{Id.} at 1311.

\textsuperscript{203}. \textit{Id.} at 1288-89. On May 2, 1979, Hagfors, Jensen and McDonald filed suit against Johnson & Johnson alleging an attempt to suppress competition in violation of §§ 1 and 2 of the Sherman Act, and § 7 of the Clayton Act. \textit{Id.} at 1288. After nearly six months of trial, the jury found for the plaintiffs and awarded $56,800,000.00 (before trebling) for the violations of the Sherman Act. \textit{Id.} at 1289.

\textsuperscript{204}. \textit{Id.} Johnson & Johnson moved for judgment notwithstanding the verdict, or for a new trial. The district court denied the motions. \textit{Id.}

\textsuperscript{205}. Chrysler Corp. v. Fedders Corp., 643 F.2d 1229, 1231-35 (6th Cir.), cert. denied, 454 U.S. 893 (1981). Chrysler sued Fedders Corporation for violations of several antitrust laws. \textit{Id.} at 1231. Chrysler had agreed to sell to Fedders substantially all of Chrysler's Airtemp Division's assets. \textit{Id.} The agreement contained a covenant not to compete in the air conditioning market for five years. \textit{Id.} When Fedders Corporation failed to pay money owed under the agreement, Chrysler brought suit, alleging that Fedder's breach of the agreement violated antitrust statutes. \textit{Id.} at 1231-35. The Sixth Circuit held that to have standing in an antitrust action, the plaintiff must prove: (1) injury in fact; and (2) that the interest that the plaintiff is seeking to protect falls within the statute in question. \textit{Id.} The court then referred to the Supreme Court's decision in \textit{Brunswick Corp. v. Pueblo Bowl-O-Mat}, which instructed courts to focus on "the type of injury pleaded and its relationship to the alleged anticompetitive conduct." 429 U.S. 477 (1977). The Sixth Circuit held that Chrysler's alleged injuries did not amount to "anti-trust injury." \textit{Chrysler}, 643 F.2d at 1235. The court determined that by selling substantially all of its assets, Chrysler had "voluntarily" withdrawn from the non-automotive air conditioning market. \textit{Id.} The court then reasoned that Chrysler would have been eliminated from competition regardless of the breach of the agreement for reasons unrelated to alleged antitrust violations. \textit{Id.} Consequently, the damage that Chrysler suffered by being unable to compete in the non-automotive air conditioning industry lacked the "essential connection between injury and the aims of the antitrust laws" which are imperative to establishing standing. \textit{Id.} (quoting A.D.M. Corp. v. Sigma Instruments, Inc., 688 F.2d 753 (1st Cir. 1980)).
sequently broke its promises and engaged in actions that prevented StimTech from aggressively competing in the pain control market. 206 McDonald, Hagfors and Jensen, as the sole owners of StimTech, were economically injured as a result of Johnson & Johnson's actions and therefore had standing to sue. 207 On appeal, the United States Court of Appeals for the Eighth Circuit reversed the antitrust convictions on standing grounds. 208 Despite the standing reversal, the case illustrates how antitrust law operates to discourage acquisitions done for the purpose of suppressing competition.

Section 1 of the Sherman Act requires that a defendant have participated in some type of agreement or conspiracy designed to restrict competition. 209 In attempting to impede the development of StimTech, Johnson & Johnson often acted through one of its subsidiaries. Although a corporation cannot generally conspire with a wholly owned subsidiary, 210 the district court found that, in this particular instance, the subsidiaries were sufficiently independent to be considered autonomous and capable of conspiring with Johnson & Johnson. 211

Whether the restraints of trade imposed by an agreement will be treated under the rule of reason or as per se violations of antitrust law depends upon whether the restraints are the main pur-

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206. McDonald, 537 F. Supp. at 1329. Relying heavily on Chrysler, the defendants, Johnson & Johnson, challenged the plaintiffs' standing. Id. They claimed that the plaintiffs withdrew from the market when they sold their business to the defendants. Id. The court in McDonald distinguished Chrysler based on extensive evidence that the plaintiffs did not intend to withdraw from the TENS industry, despite the noncompetition agreement. Id. Examples of plaintiffs' intention to compete included: (1) the pre-agreement acquisition of additional funds to further develop their TENS device; (2) the fact that the acquisition was to provide resources to continue development of the TENS device; and (3) representations by Johnson & Johnson that it would facilitate the development of StimTech's TENS device. Id. at 1299, 1329. Beyond this, Johnson & Johnson had promised the use of its own sales force and sales organization worldwide, to facilitate the acceptance of StimTech's device. Id. at 1299.

207. Id. at 1289 (denying motion for new trial and judgment notwithstanding the verdict).

208. McDonald v. Johnson & Johnson, 722 F.2d 1370, 1373 (8th Cir. 1983). The Eighth Circuit disagreed on this crucial point and reversed the antitrust convictions on standing grounds. Unlike the lower court, the appellate court found that the plaintiffs had voluntarily withdrawn from the pain control market. McDonald, 722 F.2d at 1377.

209. For the complete language of § 1 of the Sherman Act, see supra note 90.

210. See Copperweld Corp. v. Independence Tube Corp., 467 U.S. 752, 777 (1984) (noting that in administration of antitrust laws, theory that parent and wholly owned subsidiary can "conspire" has been rejected).

211. McDonald, 537 F. Supp. at 1336 (reflecting that Johnson & Johnson and its subsidiaries do not function as one company).
pose of the agreement or are ancillary to the main purpose. The 
*McDonald* court found overwhelming evidence that Johnson &
Johnson had deliberately followed a plan specifically designed to
restrain competition. Consequently, the district court found that
Johnson & Johnson had committed a *per se* violation of section 1 of
the Sherman Act. No further inquiry was made into the actual


213. *McDonald*, 537 F. Supp. at 1331-36. The court noted over 26 ways in
which Johnson & Johnson had intentionally suppressed competition by StimTech. 
*Id.* at 1333-34. These included: delaying the production of new TENS devices;
 denying StimTech necessary funding; prohibiting StimTech from displaying their
TENS devices at annual meetings or from marketing StimTech’s products with
Johnson & Johnson’s name; denying increases in research and product develop-
ment; firing the plaintiffs who developed the original TENS devices; rejecting or-
ders for the TENS devices; limiting StimTech’s advertising; and refusing to resell
StimTech to the plaintiffs. *Id.* Johnson & Johnson refused to use Dr. Long as a
consultant, but also prevented him from helping anyone else in the TENS indus-
try. *Id.* at 1334. Johnson & Johnson also prohibited the construction of plants to
make the TENS devices and prevented StimTech from entering promising foreign
markets. *Id.* The court concluded that this evidence was sufficient to establish that
Johnson & Johnson had intentionally suppressed StimTech. *Id.*

Furthermore, the court noted that by restraining StimTech, Johnson & John-
son had managed to suppress the entire TENS industry. *Id.* The development of
the TENS industry was in large part dependent on educating doctors about the
effectiveness of the devices and encouraging them to prescribe the TENS devices
rather than medication. *Id.* at 1334-35. Education, however, was extremely expen-
sive, and most of the other companies in the industry depended on StimTech to
ducate doctors because StimTech was the only company with sufficient resources
to do so. *Id.*

Finally, the fact that StimTech remained in the TENS industry and actually
experienced sales growth did not prevent the court from finding that Johnson &
Johnson restrained competition. *Id.* at 1332. Johnson & Johnson’s interests in-
cluded keeping StimTech in a dominant position in the industry, thereby allowing
Johnson & Johnson to control smaller competitors. *Id.* Moreover, had Johnson &
Johnson completely destroyed StimTech, the plaintiffs would have been free to
reenter the industry. *Id.* Thus, the court determined that it was in Johnson &
Johnson’s best interest to keep StimTech alive, but not well. *Id.* The court con-
cluded by stating: “This court finds no difficulty with the jury’s conclusion that the
defendant’s acquisitions were taken with the intent to suppress competition within
the TENS industry.” *Id.* at 1335.

214. *Id.* at 1337. The court relied on International Salt Co. v. United States,
332 U.S. 392 (1947), to find a *per se* violation of § 1 of the Sherman Act. In that
case, International Salt owned the patent for and leased two machines that process
salt products: the Lixator and the Saltomat. *Id.* at 394. International Salt was also
the country’s largest producer of salt for industrial uses. The leases for the ma-
hines required lessees to purchase all unpatented salt and salt products for use
with their machines from International Salt. *Id.* Although the patents conferred a
monopoly on International Salt with regard to the machines, they did not allow
International Salt to control the trade of unpatented salt. *Id.* at 395-96. The Court
stated that by requiring the lessees to purchase salt from International Salt, they
restrained the salt market and foreclosed competition. *Id.* at 396. According to
the Court, “it is unreasonable *per se* to foreclose competitors from any substantial
market.” *Id.* at 396.
effects of the agreement in the relevant market.\footnote{Had the case been analyzed under the rule of reason, the court's comments suggest that Johnson & Johnson would have been found liable: There is absolutely no evidence in the record to show that the suppression of TENS had any procompetitive or otherwise beneficial effects. Indeed, the evidence is such that if TENS had not been suppressed, it could have benefitted millions of people throughout the world. . . . There is simply nothing that Johnson and Johnson or any other defendant can say in defense of acquiring and suppressing a product simply to eliminate a competitive threat.}  

2. \textit{Johnson \& Johnson as Liable Under Section 2 of the Sherman Act}  

According to the Supreme Court in \textit{McDonald}, in order to prevail on a charge of attempted monopolization under section 2 of the Sherman Act, plaintiffs must show: (1) a dangerous probability of success on the part of the defendant; (2) a specific intent to monopolize; and (3) anticompetitive conduct directed at an unlawful purpose.\footnote{Id. at 1338.}

To establish a dangerous probability of success, a plaintiff must usually show that the defendant has market power. In practice, courts have been reluctant to find such power if the defendant's market share is less than fifty percent.\footnote{Id. at 1334.} Johnson & Johnson argued that its thirty-seven percent share of the prescription pain control market and twenty-seven percent share of the over-the-counter market, did not constitute sufficient market power to support a violation under section 2.\footnote{Id. at 1345-46.}

The court rejected this argument and held that Johnson & Johnson had much greater market power than market share figures indicated.\footnote{Id.} An important factor contributing to this power was the high cost of gaining acceptance for a new drug or treatment, which served as a substantial barrier to entry into the analgesic market.\footnote{For example, Johnson & Johnson spent over $13,000,000 in advertising during the first year that Zomax was introduced. Id. at 1346.} Moreover, there was direct evidence that Johnson & Johnson priced its products significantly higher than did its competitors for similar products and that this price differential was not attributable to the superior quality of Johnson & Johnson drugs.\footnote{Id.} The ability of a seller to control price is the essence of market power. The evidence of Johnson & Johnson's ability to control price, taken
together with its substantial market share and the barriers to market entry, was sufficient to support a finding of market power. The specific intent requirement of section 2 of the Sherman Act was inferred from Johnson & Johnson's attempts to suppress the development of StimTech and sales of TENS technology. 222

II. LIMITATIONS OF ANTITRUST LAW

Antitrust law has traditionally been the legal mechanism for ensuring that markets remain competitive. In the proprietary drug industry, antitrust laws deter the deliberate misuse of patents as a means of suppressing competition. They insure competition between pharmaceuticals by discouraging those who would obtain patents by fraudulent means and use such patents to their economic benefit. In addition, antitrust laws punish those who attempt to extend the scope of patent monopolies through improper tying arrangements, licensing restrictions, patent acquisitions or patent pools.

Nevertheless, proprietary drugs are typically priced at ten to twenty times the cost of production and, in some instances, appear to be beyond the means of the people who need them most. In order to understand why, we must consider the primary forces creating market power among drug products: inelasticity of demand and barriers to market entry. 223

222. Id. at 1339-41. The district court denied Johnson & Johnson's motion for a new trial and affirmed the jury's decision to award the plaintiffs $56,000,000 for the antitrust claims (before trebling), $25,000,000 in punitive damages and another $12,000,000 on other claims. Id. at 1288-89. On appeal, the Eighth Circuit reversed the antitrust convictions on standing grounds. McDonald v. Johnson & Johnson, 722 F.2d 1370, 1377 (8th Cir. 1983). The breach of contract ruling against Johnson and Johnson was sustained for actual damages of $6,275,000. Punitive damages were found to have been based upon prejudicial argument and evidence. A new trial was ordered on the issues of fraud and punitive damages. Id. 223. For a detailed discussion of the factors leading to market power in proprietary drug products see, Michael A. Sanzo, Antitrust Law and Competition in the Pharmaceutical Industry, 25 ANTITRUST L. & ECON. REV. 59, 68-74 (1991). Market power is generally the result of two elements: inelasticity of demand and barriers to competition. Id. at 68. Market power in the pharmaceutical industry, is affected by three unique factors: (1) inherent inelasticity; (2) impediments to new product development; and (3) market failure. Id. at 68-74. Inherent inelasticity refers to a consumer's willingness to pay as much as he or she can afford when someone's life or health is at stake. Id. at 70.

The second factor results from the two steps of drug development. Id. at 71-72. The discovery phase of development identifies a possible new drug, which is then patented. Id. The second phase of development, clinical studies, is equally expensive and requires years of testing. Id. Once a patent is obtained, one drug company can prevent others from developing the drug, without ever completing phase two. As a result, the consumer never gets the drug. Id.

The third factor, market failure, occurs primarily because the person prescrib-
A. Inelasticity of Demand

A manufacturer can only raise prices to the extent that consumers consider his product to be uniquely desirable. In the drug industry, inelasticity of demand arises from two factors. The first factor is the nature of the products themselves. A person's ability to function effectively on a day to day basis often depends upon the availability and effectiveness of medications. Small differences between drug products are therefore accorded a disproportionately large degree of significance. This may lead consumers to reject products as effective substitutes for one another, thereby contributing to market power.\(^{224}\)

The second factor contributing to inelasticity arises from the peculiar fact that patients typically neither select nor directly pay for medicine. Physicians usually decide what drugs will be prescribed and a consideration of cost does not appear to be a major factor influencing their decisions.\(^{225}\) Full or partial payment of the cost of drugs by third party insurers encourages both patients and physicians to spend without restraint. This aberrant situation has long contributed to the bloated costs of American medicine.\(^{226}\)

\(^{224}\) The inherent inelasticity of pharmaceuticals is not necessarily an evil. It provides exceptional rewards to companies that provide products perceived to be of exceptional value. Thus, it encourages the development of competitive products where demand is greatest.

\(^{225}\) See Brian O'Reilly, Drugmakers, FORTUNE, July 29, 1991, at 48. Dr. Jerry Avorn, associate professor at Harvard Medical School, noted that prices for drugs are high because the individuals selecting the drugs are not the individuals who actually pay for the drugs. Id. at 58. Furthermore, he noted that doctors were swayed as much by sales pitches as they are by pharmacological data, and often were uninformed about price. Id.; see also Sanzo, supra note 223, at 73 (remarking that there can be no competition if there is no knowledge about price).

\(^{226}\) See Thomas L. Greaney, Competitive Reform in Health Care: The Vulnerable Revolution, 5 YALE J. ON REG. 179, 182 (1988). Greaney noted a series of "firewalls" that health care providers had managed to erect in order to protect themselves from competition. Id. at 182. These include: maintaining professional discretion; limiting the influence of third parties, like insurance companies; controlling the division of labor; and a general lack of law enforcement of antitrust theories. Id.; Clark C. Havighurst, The Changing Locus of Decision Making in the Health Care Sector, 11 J. HEALTH POL. 697, 700 (1986) (developing idea that when health care industry regulated itself costs were high); Charles D. Weller, "Free Choice" as a Restraint of Trade in American Health Care Delivery and Insurance, 69 IOWA L. REV. 1351, 1376 (1984) (noting problem of lack of price competition in health care industry and necessity of such competition for market success).
B. Barriers to Market Entry

Even if consumer demand for a product is highly inelastic, market power cannot exist unless there is some barrier preventing the entry of competing products into the market. Patents provide one obvious example of barriers to market entry. Within the limits described in this Article, however, patents are recognized as legitimate by antitrust law. A patent confers upon its owner the right to prevent competitors from manufacturing, using or selling the invention defined by its claims. Arguably, the drug industry as we know it, could not exist without such protection. It is unlikely that a corporation would invest the $100-$200 million required to bring a new drug to market if a competitor could then quickly copy and sell the same product at a fraction of the cost. Thus, the contributions that patents make to market power are offset by their contribution to innovation.

Apart from patents, the costs associated with product development are probably the biggest single barrier to market entry. These costs are, to an extent, an inherent part of pharmaceutical products and are offset by obvious benefits to consumers. It is less obvious, however, that the distribution of these costs provides drug companies with an incentive to use patents solely to prevent new products from coming to market.

The development of a new pharmaceutical product may be viewed as taking place in four distinct phases: (1) initial observations; (2) structure determination; (3) large scale production; and (4) clinical testing and commercial production. Patents are typically obtained during the first or second phase, but the majority of the costs come later. Reasonable estimates suggest that more than half of the cost of drug development is the result of clinical testing. As a result, a company marketing a drug uniquely suited to

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227. See O'Reilly, supra note 225, at 58 (noting that producing successful new drug costs approximately $200,000,000).

228. Michael A. Sanzo, Patenting Biotherapeutics, 20 Hofstra L. Rev. 387, 394-97 (1991). The developmental process begins when a novel biological factor of potential therapeutic value is observed: initial observation phase. Id. at 395. Next, the structure of the factor is determined. Id. at 395-96. The time period between when a factor is first observed and when its structure is determined can be quite long. Id. To determine whether the invention will have any therapeutic value, abundant quantities of the factor must be produced in order to test its effects in animals: large scale production. Id. Finally, if a drug has made it through the first three phases, it will be tested on humans and determinations will be made as to whether it is an economically feasible alternative to other available alternatives: clinical testing and commercial production. Id. at 397.

229. O'Reilly, supra note 225, at 58. Drug companies often talk about the time and expense of producing a new drug. Id. Only 25% of most companies'
the treatment of a particular condition (drug "A"), would have little incentive to develop a second drug "B" for the same condition. Even if B appeared to be clinically superior to A, it would not make economic sense to pay for clinical testing. B's success would only displace market share from the company's own product, drug A. On the other hand, the company would clearly not want a competitor to develop and market B. Therefore, a sensible strategy would be to obtain a patent on B with as little work as possible and to use this patent to prevent competitors from marketing B. Thus, a barrier to competition would have been established with no offsetting benefit to consumers.

III. Reducing Market Power in the Pharmaceutical Industry

As previously discussed, antitrust law and patent law operate together in the pharmaceutical market to achieve a balance between competition and innovation. This balance is distorted by market power generated by inelasticity of demand and barriers to market entry. Both inelasticity and barriers to entry are, to some extent, an inherent part of drug products and cannot be changed. Certain aspects of these factors, however, are not inherent and can be limited by antitrust law or patent law.

A. Using Antitrust Law to Combat Market Failure

The absence of price competition among pharmaceuticals is a reflection of the lack of price competition in the American health care industry in general. Historically, physicians have not considered cost when providing medical care or prescribing drugs. Research and development funds go to finding a new product. The majority of the money is spent on three phases of testing involving patients, doctors and statisticians. The author states that lack of knowledge about the quality and pricing of medical care furthers the inefficiencies of the health service marketplace. Because the consumer is unaware of other prices for the same service, the physician is able to set whatever price he deems reasonable. State statutes, regulatory rules and professional ethics have intensified consumer ignorance, rather than diminishing it, by preventing disclosure of credentials and price. (noting that health care systems rewards providers who charge more, creating "cost increasing incentives").

230. See generally CLARK C. HAVIGHURST, DEREGULATING THE HEALTH CARE INDUSTRY 78-82 (1982) (stating that consumer ignorance about pricing allows physicians to maintain monopolistic power and profits). The author states that lack of knowledge about the quality and pricing of medical care furthers the inefficiencies of the health service marketplace. 230. Id. at 78. Because the consumer is unaware of other prices for the same service, the physician is able to set whatever price he deems reasonable. 231. Id. at 79. State statutes, regulatory rules and professional ethics have intensified consumer ignorance, rather than diminishing it, by preventing disclosure of credentials and price. 231. Id. at 82; see also Alain C. Enthoven, Health Care Costs: Why Regulation Fails, Why Competition Works, How to Get There From Here, 11 Nat'l J. 885, 885 (1979) (noting that health care systems rewards providers who charge more, creating "cost increasing incentives").
Fortunately, medicine is rapidly becoming more competitive. During the late 1970s and the 1980s, there was a proliferation of prepaid medical plans and it appears that this trend is likely to continue in the future. These plans appeal to employers and other consumers by limiting medical costs. Prepaid medical plans include prepayment for prescription drugs, thereby creating an incentive at the administrative level to reduce the amount spent on these products.

Not surprisingly, the trend toward competition has been strongly opposed by medical groups intent upon maintaining the profits of private physicians. Such groups were successful in smothering a similar trend in the 1920s and 1930s. Antitrust law and antitrust lawyers can help lower the cost of drugs and make medical care more responsive to public need by ensuring that the medical profession is not allowed to prevail a second time.

generic versus brand name drugs). Dr. Jadlow notes the overwhelming theme in this area as "few men are as careful of other men's money as their own." Id. at 105. Because the chemical and generic names are often hard to remember, doctors prescribe by brand name, thus ordering the more expensive drug. Id. at 105-06, 110.

232. Health care reform measures being considered by Congress could, potentially, alter this situation.

233. See Clark C. Havighurst, The Professional Paradigm of Medical Care: Obstacles to Decentralization, 30 Jurimetrics J. 415, 416-17 (1990) (noting that employers, insurers and organized health plans have become more active in balancing benefits of health care with costs); Weller, supra note 226, at 1372-75 (analyzing restructuring of health care industry).

234. See Paul Starr, The Social Transformation of American Medicine 198-232 (1982). During the 1920s and 1930s, the medical profession successfully shaped the medical system so that "professional sovereignty" emerged intact. Id. at 232. The medical community achieved this result by controlling the development of technology and the division of labor and choosing the present organizational form. Id. As technology advanced, X-ray machines were invented, anesthesia became more prevalent, and laboratories expanded, the issue arose as to whether doctors were necessary for these jobs. Id. at 220-21. While skilled non-physicians were allowed to perform some of these tasks, it was established that the physician had to interpret results and consult with patients. Id. Doctors successfully resisted the emergence of the corporate form in their practice because they wanted to prevent a third party from controlling their actions and sharing their profits. Id. at 215-17. All of these actions allowed physicians to retain control over the medical profession. Id. at 232; see also Weller, supra note 226, at 1361. The emergence of the prepaid plans was the result of several aspects of society in the late 1920s and early 1930s. Id. These "insurance" plans were perceived as a threat by the hospitals and the medical profession as a whole. Id. at 1364.

235. The battle against monopolistic practices in medicine is a complex topic beyond the scope of this Article. For a complete discussion of the battle against monopolistic practices in medicine, see Greaney, supra note 226, at 180-84 (discussing role of litigation and legislation in promoting competition in health care industry); Havighurst, supra note 226, at 698, 708 (noting shift of decision-making, which was entirely dominated by medical profession, back to consumers themselves as method for generating competition); Weller, supra note 226, at 1352-55

A patent may be thought of as a contract in which the government grants exclusivity to an inventor in exchange for the disclosure of his invention. The intellectual property created by a patent differs from ordinary property in that it consists of an intangible concept, not the embodiment of a concept. Thus, everyone other than the patentee is prohibited from making, using or selling an invention solely because the patentee conceived of it first.

The justification for the government granting such broad protection is that patents ultimately benefit society by encouraging the proliferation of innovative products. Thus, the patent contract carries with it an implied duty to make patented inventions, or at least those for which there is significant consumer demand, available to the public. In opposition to this, the structure of research costs encourages companies with a dominant market position to acquire patents on drugs that have not yet undergone clinical testing and to use these patents to block competition.

236. The Supreme Court has held that a patent holder does not have an obligation to use his or her patent. Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 428-30 (1908). Eastern Paper Bag sued for an injunction because of infringement of its patent on a paper bag machine patent by Continental Paper Bag Company. Id. at 406. The defendant alleged that the patent had never been used, and that it was inequitable to suppress a useful business from exploiting a patent under such circumstances. Id. The Court noted that many of the circuit courts of appeal had granted injunctions to companies whose patents had been infringed, even if the company was not using the patent. Id. at 426. The defendant attempted to distinguish "non-use" from "long and unreasonable non-use." Id. at 427. The Court, however, determined that non-use by Eastern Paper Bag was not unreasonable, for it would have increased costs to develop a new machine. Id. at 429. The Court held that Congress had selected a policy of patents not being affected by non-use for many years, and the policy "has demonstrated its wisdom and beneficial effect on the arts and sciences." Id. at 428-29. The injunction was affirmed. Id. But see Special Equip. Co. v. Coe, Comm'r of Patents, 324 U.S. 370, 378-79 (noting that Supreme Court has routinely held that "failure of the patentee to make use of a patented invention does not affect the validity of the patent"); Vitamin Technologists, Inc. v. Wisconsin Alumni Research Found., 146 F.2d 941, 952-53 (9th Cir. 1944), cert. denied, 325 U.S. 876 (1945). Wisconsin Alumni Research Foundation sued Vitamin Technologists, Inc., for injunctive relief for infringing one of its three patents for a process for making Vitamin D. Id. at 942. The Ninth Circuit held that the refusal to use the patent to irradiate oleomargarine, and thus aid the poor who suffered from rickets, violated public policy. Id. at 943, 956. The court stated that "such refusal to permit such irradiation warrants the refusal of the equitable injunction." Id.; see also Allied Research Prods. Co. v. Heatbath Corp., 300 F. Supp. 656, 657 (N.D. Ill. 1969) ("An owner of a patent cannot assert his rights under the law and Constitution if such owner refuses to make use of a patent.").
By suppressing innovation and impeding public access to new products, blocking patents act contrary to the basic rationale underlying the patent system. This could be rectified through laws requiring patent holders, who fail to market their invention within a reasonable period, to license the rights to the invention upon demand.

Compulsory licensing laws are common in countries other than the United States, and a theoretical basis for such provisions may be found in American patent law itself. Section 102(g) of

237. It can, of course, be argued that the patent has secured for the public free use of the invention upon expiration of the patent term. This only benefits society, however, if someone else would not have made the same invention during this period. Importantly, many companies often actively pursue the same inventions using essentially the same methods. This is particularly true for the most promising inventions of biotechnology. In such situations, each of the competing parties will likely obtain the product being pursued within a short time of one another.

238. See, e.g., Mason v. Hepburn, 13 App. D.C. 86 (1894). According to the Mason court:

[T]he inventor who designedly . . . withholds his invention from the public, comes not within the policy or object of the Constitution or acts of Congress. He does not promote and, if aided in his design, would impede the progress of science and the useful arts; and with a very bad grace could he apply for favor or protection to that society which . . . he certainly had neither benefitted nor intended to benefit.

Id. (quoting Kendall v. Winsor, 62 U.S. (21 How.) 322, 327-28 (1858)).

239. Evidence of a good faith effort to develop or market the invention might be sufficient to preclude compulsory licensing.

240. Such laws already exist for patents obtained as the result of federally funded research. See 35 U.S.C. §§ 200-211 (1988) (defining patent rights when invention is made with federal assistance). In particular, § 203 provides:

(1) With respect to any subject invention in which a small business firm or nonprofit organization has acquired title under this chapter, the Federal agency . . . shall have the right . . . to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license . . . to a responsible applicant or applicants . . . if the Federal agency determines that such—

(a) action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention.

Id. § 203. In principle, there is no reason why these laws could not be extended to patents in general.

241. See David J. Henry, Multinational Practice in Determining Provisions in Compulsory Patent Licenses, 11 J. INT’L L. & ECON. 325, 325 (1976). Most countries have adopted either the “patent approach” or the “misuse approach” to compulsory patent licenses. Id. Under the patent approach, there is a positive limit on the rights bestowed by the patent at the time of issuance. Id. Under the misuse approach, a country grants a license as a potential remedy when a patent is misused. Id. The United Kingdom, Canada and France all have compulsory patent licenses dealing with the pharmaceutical industry. Id. at 338, 345. While Japan and Germany have laws defining the granting of compulsory licenses, none have actually been granted. Id. at 346-48.

242. Compulsory licensing laws have been approved in the United States for
the Patent Act provides that an inventor may lose the right to priority by abandoning, suppressing or concealing an invention or by failing to use reasonable diligence in pursuing the invention.\textsuperscript{243} If suppression of an invention is sufficient grounds for the denial of rights before a patent is granted, it should carry the same consequence after the patent is granted. A patent is not an end in itself, but rather, a set of rights granted in the expectation that they will lead to inventions being made available to consumers.

Compulsory patent laws may be considered analogous to the remedy of specific performance, provided patent holders are justly compensated and receive a fair opportunity to work their invention themselves. Such laws compel the patent holder to fulfill the patent contract obligations of promoting science and the useful arts. Ultimately, compulsory licensing laws should lead to both lower drug prices and an increase in the number of competitive products being marketed.

IV. CONCLUSION

In the proprietary drug industry, antitrust laws act at the boundary of patent monopolies. They help to insure that patents do not limit competition between drug products more than is warranted by the underlying objective of promoting innovation. Antitrust law can do more to control drug prices by helping to open the health care market to providers that compete based on price. Patent law can also help to promote competition among drugs by removing incentives for companies to obtain patents for the sole purpose of preventing products from coming to market.

\textsuperscript{243} The Patent Act provides:
A person shall be entitled to a patent unless—
\hspace{1em} (g) before the applicant's invention thereof, the invention was made in this country by another who had not abandoned, suppressed or concealed it. In determining priority of invention, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was the first to conceive and the last to reduce to practice.