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Myron W. Watkins

George W. Stocking

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PATENT MONOPOLIES AND FREE ENTERPRISE *

MYRON W. WATKINS † and GEORGE W. STOCKING ‡

Public policy has long recognized the intimate relation between a dynamic technology and a well-adjusted economy. Without experiment, industrial arts stagnate. Rightly understood, invention is synonymous with improvement in the industrial arts, and invention comes about only from experimenting. Not every inventor finds what he is looking for, true enough, or is looking for what he finds. But unless, consciously or unconsciously, he is seeking a new way to do something or a new "combination of matter" he will never discover anything.

To encourage experiment and thus foster technical improvement is the avowed purpose of the American patent system. The men who wrote the Constitution did not mention "patents" but they did authorize Congress "To promote the Progress of . . . useful Arts." The Constitution, moreover, specifies how this power, alone among the enumerated powers of Congress, shall be exercised. It limits congressional discretion in choice of means for accomplishing this end to ". . . securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries."¹

ORIGINS OF PATENT SYSTEM

England for more than a century and a half prior to the writing of

* In slightly altered form, this article will constitute a chapter in a book entitled *MONOPOLY AND FREE ENTERPRISE*, soon to be published by the Twentieth Century Fund. The authors have collaborated on two earlier books published by the Twentieth Century Fund—*CARTELS IN ACTION* (1946), and *CARTELS OR COMPETITION* (1948).

† Formerly Professor of Economics, New York University; now consulting economist, New York City.

‡ Professor of Economics, Vanderbilt University.

1. U.S. CONST. Art. I, § 8, ¶ 8 provides that "The Congress shall have Power . . . To promote the Progress of Science and useful Arts by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

A common mistake is to associate the Constitutional authorization to promote the progress of "Science" with the grant of patents to "Inventors." But the branch of knowledge now called science was in the eighteenth century termed natural philosophy. As the men who drafted the Constitution used the term, "Science" embraced all knowledge. If the eighth paragraph of Art. I, § 8 had been divided into two paragraphs, instead of covering both copyrights and patents in a single paragraph, these would have read:

"8a. To promote the Progress of Science by securing for limited Times to Authors the exclusive Right to their Writings.

"8b. To promote the Progress of useful Arts by securing for limited Times to Inventors the exclusive Right to their Discoveries."

In his dissenting opinion in *United States v. Line Material Co.*, 333 U.S. 287, 332, 68 Sup. Ct. 550, 92 L. Ed. 649 (1948), Mr. Justice Burton makes a comparable division but limits it, unfortunately, to the instrumental clause beginning "by securing . . ." No reason is suggested, and in fact none exists, for not carrying the same division straight through the substantive clause itself, as in the paraphrase of this section (8a and 8b) above. Even so discriminating a scholar as Walton H. Hamilton missed this point. See his pamphlet, *PATENTS AND FREE ENTERPRISE 1* (TNEC Monograph 31, 1941).

the United States Constitution had recognized the great advantage for industrial development of encouraging inventors with limited-term monopolies. The famous Statute of Monopolies of 1623 explicitly exempted from its sweeping proscription of exclusive privileges those patents given inventors for introducing "any manner of new Manufactures within this Realm."² Parliament, it is clear, made the grant of monopoly privileges to inventors an exception to the general rule.

Free access to all technological methods of established trades was made inviolable. Not subject to the let or leave of anyone was the right of an Englishman, if entitled to practice any trade, to practice it as others customarily practiced it. Such was the meaning of the Statute of Monopolies. But so important was it thought to be for innovators to discover new ways of making things or new things to make that Parliament undertook to stimulate such activity by offering to traders, for devising a novel "manner of manufacture," what immemorial experience indicated they most coveted: freedom *from* competition.

But lest the monopoly privileges of inventors become an obstruction to the general freedom of trade and a drag on economic progress—in short, lest the exception become the rule—the statute limited the life of patents for invention to 14 years.³ Parliament apparently reasoned that a period of this duration was sufficient to enable infant industries to acquire strength to stand on their own feet, without benefit of a public franchise.

CHANGES IN NATURE OF INVENTION

The distinctive features of the American patent system derive from the circumstances prevailing at the time of its origin. As it originated when handicraft was characteristic of technology, it was adapted to the discovery and improvement of tool-using techniques.⁴ For this purpose it

2. 21 JAMES 1, c. 3, § V (1623).

3. Until the middle of the nineteenth century, both in England and America, grants of exclusive privileges, whether in the form of patents for invention or of copyrights, were always for a period representing some multiple of seven years. The original copyright statute, 8 ANNE, c. 19 (1709), specified a term of 14 years, renewable for the same term. In the United States, the 14-year term applied to both copyrights and patents at first, though copyrights were subject to renewal for another 14 years. In 1831, the initial copyright period was extended to 28 years. The 17-year term of patents was adopted in 1861. It represented a split-the-difference compromise between those who wanted a flat extension of the term to 20 years and those who wanted simply to eliminate the discretionary 7-year extension that Congress had authorized in 1836.

4. The explanation of the original selection of a 14-year term for patents in 1623 is found mainly in the circumstance that the conventional period of apprenticeship for most crafts under the guild system as regulated by the Statute of Apprentices, 1562, 5 ELIZ., c. 4, was seven years. Parliament probably considered that the introduction of a new trade and its establishment on a sure footing required training in the new art of more than a single complement of artisans. With two "classes" of fullfledged journeymen from which to recruit a corps of workers, there would be opportunity for an enterprising "master" to set up shop for himself and provide effective competition in the practice of the invention.

looked to the initiative and resourcefulness of *individuals*. And it did not look to them in vain. Under then existing conditions, invention involved tinkering with tangible things. Commonly, it was not even a full-time job. Rather, it was a sideline, often a mere pastime.

The patent system contemplated that the artisan at his bench or the manufacturer familiar with certain productive processes would from time to time hit upon a short cut, or perhaps devise some new method.⁵ It was presumed that he would himself make commercial use of his discovery and, armed with a patent, prevent others from using it.

At the same time, in view of the comparatively slow advance in a technology still dominated by manual skill, improvements subject to patent seemed unlikely to be frequent or radical enough to enable an inventor to monopolize an entire branch of industry. Others, it was assumed, would continue to make and sell the same product in the traditional way, or to make and sell conventional products for which a patented product was only a substitute. Thus competition would not disappear, and "going concerns" would be in position to utilize the invention when the patent expired. In the days of slow, costly transport and local markets, this was not an unjustified assumption. Under such conditions there was no anomaly in offering a public reward to a "true and *sole* inventor."

The growth of corporate enterprise and the prodigious development of physical science in the nineteenth century led to a gradual eclipse of the independent inventor. In the first place, ready access to current technological usage was blocked because of the concentration of production in most industries under control of a comparatively few large corporations representing a heavy capital investment. Such enterprises do not usually open their facilities to the experiments of outside "inventors" with a roving curiosity.

Similarly restrictive of opportunity for casual experimentation by individuals was the change in the qualifications and equipment necessary for significant invention. The progress of science made available for technological adaptation a bewildering assortment of obscure chemical reactions, subtle biological processes, invisible electrical phenomena and elusive kinetic forces. The mastery of these varied and cumulatively complex scientific advances, to subdue them to industrial application, was not a task for lone inventors, however versatile. It called for well-financed, systematically organized, and highly specialized research in elaborately equipped laboratories.

5. See Stedman, *Invention and Public Policy*, 12 LAW & CONTEMP. PROB. 649, 678 (1947). It is significant that the patent system first appeared in an era when the only resources on which inventors could draw, other than the knowledge derived from practice and observation, were those of a "natural philosophy" which was an avocation, chiefly, of schoolmasters and clergymen. When the United States patent system was established even the atmosphere was still empty space except for Priestly's "phlogiston."

Invention in the twentieth century became, therefore, characteristically a group process.⁶ It is a pure legal fiction to assume, as do the patent laws, that some "true and sole inventor" can be found who alone is responsible for every discovery issuing from the highly articulated experiments of a great industrial laboratory employing scores, even hundreds, of technicians.

SAFEGUARDS AGAINST PATENT PERVERSION

Radical changes, both in technology and in the organization of industry, have so altered the nature of invention and the economic position of inventors as to cast strong doubt on whether patents are a suitable stimulus to individual experimentation and innovation under modern conditions. Though the patent system today still serves this basic purpose, it tends to funnel the major benefits of the monopolistic privileges it creates into the hands of large corporations, which find these grants useful as an adjunct and aid in restraining competition.

Quite apart from these fundamental changes in the institutional environment, patents are a rather awkward way of stimulating and rewarding inventors, even in an economy made up mainly of small-scale enterprises using handicraft techniques and catering to local markets. The founders of the American patent system were aware of the dangers inherent in governmental grants of monopoly privileges in any economy that depends on free enterprise and competition to protect the public interest. They tried to guard against those dangers.

The most obvious safeguard was the limitation of patent grants to 14 years. Another was the requirement of disclosure; the law required a patent applicant to specify exactly what he claimed to have discovered "to the end that the public may have the full benefit thereof after the expiration of the patent term."⁷

6. See Conant, *The Place of Research in Our National Life*, 26 HARV. BUS. REV. 46, 50-51 (1948); Kahn, *Deficiencies of American Patent Law*, 30 AM. ECON. REV. 475, 478-82 (1940); Petro, *Patents: Judicial Developments and Legislative Proposals*, 12 U. OF CHI. L. REV. 80 & 352, 352-81 (1945); and HAMILTON, PATENTS AND FREE ENTERPRISE 43-44 (TNEC Monograph 31, 1941).

7. For citations of the early patent statutes and general information on the development of legislative policy and administrative practice, see *Outline of the History of the United States Patent Office*, 18 J. OF PATENT OFFICE SOC. (1936). The Society published this useful study serially on the centenary of the basic statute still in force, the Act of July 4, 1836.

Both the first (1790) and second (1793) patent acts required enough disclosure to distinguish the alleged invention from the prior art. The third (1836) patent act went farther. It required the specification of "claims," a detailed differentiation from the elements "before known or used" of "the part, improvement, or combination which he claims as his own invention or discovery." Thus it put the responsibility on the inventor to winnow the grain from the chaff. If he "claims" as his invention more than what is novel, the Patent Office may reject his application, or require its amendment. And if a patent issues with a claim broader than the invention, the courts may invalidate it. "[T]he claims measure the invention." *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 419, 28 Sup. Ct. 748, 52 L. Ed. 1122 (1908). See also, *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 58 Sup. Ct. 899, 82 L. Ed. 1402 (1938);

A third safeguard was the restriction of the subject matter of patentable invention to technological devices. The words of the original patent act of 1790 clearly reflect congressional intent to limit in this way the discoveries or contrivances eligible for patents. The statutory definition embraced any "useful art, manufacture, engine, machine or device, or any improvement therein, not before known or used."⁸ These terms connote technological advance; they carry no suggestion of permitting monopoly privileges for new toys, medicines, or other consumable commodities. Finally, the law authorized administrators to issue patents only for inventions that were, in their judgment, "sufficiently useful and important" to warrant a monopoly grant.

Congress later abandoned this prerequisite for a patent. In 1793 it adopted the so-called registration system, under which the patent issues as a matter of course if the application is in proper form.⁹ The issuance of the

and Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 68 Sup. Ct. 440, 92 L. Ed. 588 (1948). The majority opinion in the *Wabash* case and the concurring opinion by Mr. Justice Frankfurter in the *Kalo* case grounded the invalidity of the patents in controversy on the patentee's failure clearly to specify the novel elements in his invention.

8. The second (1793) patent act substituted "composition of matter" for "device." This change was apparently designed to cover new chemical compounds. It did not modify the emphasis of the original definition on novel technological contributions. But subsequent judicial and administrative interpretations of the definition have broadened the scope of patentable subject matter to embrace contrivances of every kind—even consumable commodities—provided they are "new and useful." See WAITE, PATENT LAW 25-26 (1920).

The only subsequent changes in the statutory scope of patentable subject matter were an amendment of 1842 authorizing patents for designs and an act of 1930 which made eligible new varieties of botanical plants. The propagation of hybrid plants is doubtless a "useful art," but mere ornamentation is in a different category. Nevertheless, a Supreme Court solicitous of property rights and tolerant of their rapid extension into the public domain, upheld the design-patent law. *Gorham Mfg. Co. v. White*, 14 Wall. 511, 20 L. Ed. 731 (U.S. 1872). It did so, notwithstanding an express finding that the act was "plainly intended to give encouragement to the decorative arts" and that "giving certain new and original appearances to a manufactured article may enhance its salable value." 14 Wall. at 524. (Italics supplied.) It apparently escaped the notice of the Court that, however laudable such an object may be, it does not lie within the Constitutional powers of Congress, or, if so, at any rate not within the specific grant in Art. I, § 8, ¶ 9. Nevertheless, decorative designs are still subject to patent, though even those who want design protection recognize the anomaly and have long sought eligibility to copyright, instead. See, for example, "Design Protection," *Hearings before Committee on Patents on H.R. 5859*, 74th Cong., 1st Sess. (1935). The same situation exists in England: the anomaly of design protection under the patent laws and the movement to transfer the whole subject to the copyright laws. See "Patents and Designs Acts," Final Report of the Departmental Committee, Board of Trade, CMD. No. 7206 (1947).

9. Jefferson was mainly responsible for the adoption of the registration system, but he favored it, not because he thought the test of usefulness was unnecessary, but because as Secretary of State, charged with the chief responsibility for applying the test, he found it took too much time from other more important duties. He said, "I know well the difficulty of drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not." He had seen "with what slow progress a system of general rules could be matured." So, to relieve the heads of Executive Departments of this burdensome task he suggested it be "turned over to the judiciary, to be matured into a system. . . ." Even so, he expressed misgivings about the efficacy of this procedure. He considered lawyers poorly qualified for such a function, which "is more within the information of a board of academical professors, and a previous refusal of patent would better guard our citizens against harassment by lawsuits." The characterization of "Sage of Monticello" was well earned! See 13 WRITINGS OF THOMAS JEFFERSON 335-36 (Mem. ed. 1904).

patent is merely a ministerial act, not conditioned by any examination for novelty or judgment on utility. Among the leading industrial countries, France alone still follows this procedure.

The registration system continued until 1836, when Congress restored the examination system. "Examination" in the Patent Office means simply review of the prior art (as disclosed nowadays chiefly in technical publications) to determine whether the alleged invention has been *anticipated*. The courts, moreover, have upheld the practice of the Patent Office in basing the test of "sufficient" usefulness and importance merely on the absence of inutility. Justice Story's dictum in an early case has become settled doctrine: ". . . the word 'useful,' therefore, is incorporated into the act in contradistinction to mischievous or immoral."¹⁰

The designers of the original patent system, then, plainly sought to provide one that would conform closely to its constitutional mandate: to promote, and not obstruct, "the Progress of . . . useful Arts." Each of the specified safeguards recognized by implication that patent monopolies are in some respects anomalous in a predominantly competitive, free-market economy and recognized that the practical problem is one of balancing the advantages of promoting invention against the disadvantages of restricting competition.¹¹ The first Congress showed determination to limit such special privileges to the minimum consistent with encouragement of technological experimentation. Later Congresses have not hewed so closely to the constitutional line. Every one of the four safeguards mentioned has been weakened in the course of a century and a half of intermittent statutory amendment.

Even if legislative policy had adhered to the original constitutional prescription, the patent system as we know it today would still tip the scales heavily in favor of promoting invention as against fostering competition in trade and industry. The system would still be a bulwark of industrial monopoly

10. *Lowell v. Lewis*, 15 Fed. Cas. 1018, 1019, No. 8568 (C.C.D. Mass. 1917). Consequently for over a century the Patent Office has gone on issuing patents on frivolous inventions, in this respect continuing the same practice that developed under the registration system. See the testimony of Dr. Waldemar Kaempfert, science editor of the *New York Times* in *Hearings before the Committee on Patents on H.R. 4523*, 74th Cong., 1st Sess. 874 *et seq.* (1935). As an example of frivolous patents, he mentioned the pedal calorificator, a device for warming one's feet by exhalations of the lungs conducted from the nostrils through tubes!

11. The short-run problem is complex; the long-run problem is more so. No one can be sure to what extent patent monopolies accelerate technological advance and the investments required to make its fruits available to society. Schumpeter thinks patent monopolies may lure risk capital into enterprises that otherwise would not be launched. See SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY*, cc. 7, 8 (1942). Veblen, Ogburn and Ayres hold that the cumulative nature of technology makes technological innovation practically inevitable. See VEBLÉN, *THE PLACE OF SCIENCE IN MODERN CIVILIZATION* 320, 324-86 (1919); OGBURN, *SOCIAL CHANGE*, pt. 2, cc. 4, 5 (1922); AYRES, *THE THEORY OF ECONOMIC PROGRESS*, cc. 6, 7 (1944).

Whoever is correct, one thing is certain, patent policy affects for good or ill the rate of the commercial introduction of technological innovations. On what its precise effects may be, it is hazardous to generalize. But the record clearly indicates that business has used the monopoly privileges that patent policy bestows to obtain controls over industry that antitrust policy prohibits. See text *infra*.

because judicial interpretation and administrative practice gradually modified the original safeguards until by the first decade of the twentieth century the patent system had become a special sanctuary for trusts, pools and trade confederacies. With the protection of patent franchises, big business has been able to circumvent the basic law prohibiting monopoly.¹² Armed with a patent—still better, with a whole arsenal of patent rights and patent licenses—a consolidation or restrictive trade pool was almost immune to anti-trust action.¹³

EVILS OF MULTIPLICITY

If the patent system has in some important respects miscarried, the government shares responsibility with business. If in the quest for industrial hegemony giant corporations have used patents to stifle competition, even in matters outside the scope of letters patent, the laxity of Congress, the Patent Office and the courts has abetted such practices.

Congress could easily have checked one abuse—patent multiplicity—that has contributed to the promotion of ends the patent system was never designed to serve. Amendment of the definition of “invention” to narrow the scope of patentable subject matter would have reduced the flood of specious claims for special privilege. A rigorous limitation of “invention” to new technological expedients would bring the patent system closer to the

12. Cf. HAMILTON, PATENTS AND FREE ENTERPRISE 57-85, especially 62, and 134-43, especially 141 (TNEC Monograph 31, 1941), where the author says: “The ‘exclusive right’ of the patentee became ‘the patent monopoly,’ and this was converted into a one-way street along which no trespassers might go.”

13. For notorious examples, see *Bement & Sons v. National Harrow Co.*, 186 U.S. 70, 22 Sup. Ct. 747, 46 L. Ed. 1058 (1902); *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 28 Sup. Ct. 748, 52 L. Ed. 1122 (1908); *Leeds & Catlin Co. v. Victor Talking Machine Co.*, 213 U.S. 325, 29 Sup. Ct. 503, 53 L. Ed. 816 (1909); *Henry v. A. B. Dick Co.*, 224 U.S. 1, 32 Sup. Ct. 364, 56 L. Ed. 695 (1912); *United States v. Winslow*, 227 U.S. 202, 33 Sup. Ct. 253, 57 L. Ed. 481 (1913); *United States v. United Shoe Mach. Co.*, 247 U.S. 32, 38 Sup. Ct. 473, 62 L. Ed. 968 (1918); *United States v. General Electric Co.*, 272 U.S. 476, 47 Sup. Ct. 192, 71 L. Ed. 362 (1926); and *Standard Oil Co. (Indiana) v. United States*, 283 U.S. 163, 51 Sup. Ct. 421, 75 L. Ed. 926 (1931).

The rule was not always thus. In the 1880's a federal court held that a patent, so far from representing an absolute property right, was invested with such public significance that a patentee “is bound either to use the patent himself or allow others to use it on reasonable or equitable terms.” *Hoe v. Knap*, 27 Fed. 204 (C.C.N.D. Ill. 1886). And in the 1890's, the Supreme Court itself showed some concern to keep patent monopolies subservient to the public interest. *Morgan Envelope Co. v. Albany Paper Co.*, 152 U.S. 425, 14 Sup. Ct. 627, 38 L. Ed. 500 (1894); and *Keeler v. Standard Folding-Bed Co.*, 157 U.S. 659, 15 Sup. Ct. 738, 39 L. Ed. 848 (1895). Occasionally, moreover, even in the heyday of the patents-as-private-monopoly doctrine, the courts stripped patent-pooling schemes of their subterfuges and condemned them (or their practices) as restraints of trade. *Standard Sanitary Mfg. Co. v. United States*, 226 U.S. 20, 33 Sup. Ct. 9, 57 L. Ed. 107 (1912); *United States v. New Departure Mfg. Co.*, 204 Fed. 107 (W.D.N.Y. 1913); and *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 37 Sup. Ct. 416, 61 L. Ed. 871 (1917). Thus the path to legal sanctuary for industrial monopoly, through patents, has not been entirely smooth and free from risk. Moreover, since the Great Depression and the New Deal, which brought great changes both in personnel and outlook of the Supreme Court, judicial interpretation of the patent laws has undergone a revolutionary change. And this judicial revision of patent policy is still in progress. See text *infra*.

constitutional specification: promoting progress in the "useful Arts." Perhaps the outstanding illustration of congressional indifference to limitation of competition through the liberal application of the patent laws is the continued authorization of patents on foods and medicines. The evils of a government grant of monopoly in things necessary for health and even for human life is underscored both by recent experience and by the opposite practice abroad.¹⁴

Even without any statutory changes, the Patent Office in the first instance, and the courts on review, could have checked the proliferation of patent rights. But the Patent Office has a bureaucratic stake in a liberal patent policy—the greater the number of patent applications on file and of patents granted, the longer its civil service list. Naturally the Patent Office welcomes all grist to the patent mill. Naturally, too, the longer the list of "patent numbers" and "patents pending" that a company can stamp or print on each of its products, the more effectively it can frighten off easily intimidated competitors.¹⁵ Hence "supply" and "demand" for patents are both under inflationary pressure. The channels of trade are consequently cluttered with a multitude of extremely dubious patent claims, many of which represent invention only by a great stretch of the imagination.¹⁶

In the fifty years from 1890 to 1940, the annual average number of patents issued increased progressively from decade to decade. The rate of issuance in the 1930's—48,520 a year—was more than double the rate in the 1890's, as the following annual averages per decade show:¹⁷

14. Great Britain specifically excludes from patent privileges "substances . . . intended for food or medicine." See CMD. No. 7206 at 21 (1947).

15. For a patentee to obtain protection of a patented article, the statutes require him so to mark it plainly, giving the number and date of each patent involved. But the law does not require differentiation between patents for invention and design patents. Only by a search of Patent Office records can a person tell whether it is the ornamental design on a patented product or its structure that cannot be copied without risk of a suit for infringement. See 35 U.S.C.A. § 49 (1940).

16. See, for example, the testimony of James McEvoy, head of the patent department of General Motors Corporation, in the TNEC Hearings, where he illustrated "a perfectly silly patent" and declared ". . . there are thousands and thousands of patents just like that . . . Of course, I think that most patents like that are utterly invalid." On the reasons for this situation, he said, "I think one difficulty, sir, in the Patent Office is the pressure that they are under to get out patents. . . . I understand in a great many divisions the head of the division has given orders to the men that they have to get out so many patents every week . . . and in many cases there is no proper investigation, sometimes no investigation whatever." "Investigation of Concentration of Economic Power," *Hearings Before the Temporary National Economic Committee*, pt. 2, 75th Cong., 3d Sess. 369-70 (1939). [Hereafter these hearings will be cited as *TNEC Hearings*.] For a collection of "silly patents," see BROWN AND JESSCOTT, *BEWARE OF IMITATIONS* (1932).

17. Data taken from the *Index of Patents*, issued annually by the United States Patent Office, Department of Commerce. They cover not only patents for inventions but also design patents, plant patents (since 1931), and reissues. Data for 1947 show how total issues are currently distributed among these four categories: inventions, 20,149; designs, 2,102; reissues, 130; plants 52.

1890-1899	23,475
1900-1909	31,448
1910-1919	39,754
1920-1929	44,394
1930-1939	48,520
1940-1947	35,078

Even after making allowance for the growth of population, the rate of issuance increased nearly 20 per cent between the decade of the 1890's and the decade of the 1930's. On annual average, patents issued per million of population were as follows:

1890-1899	308.9
1900-1909	341.9
1910-1919	376.1
1920-1929	361.6
1930-1939	368.5
1940-1947	245.9

That the increase is more a reflection of judicial and administrative policy than of the rate of technological advance is suggested by the sharp decline since 1940. In 1947 only 22,423 patents were granted, less than half the number issued in 1939. This decline apparently reflects the response of the Patent Office to the increasingly vigilant scrutiny of patents by the courts in recent years whenever they have had an opportunity to rule on patent validity.¹⁸

The multiplicity of patents and the large proportion of patents issued on trivial, often worthless, innovations¹⁹ obstruct enterprise and hinder competition in several ways. They lengthen and complicate the search to find out whether a particular technique or product feature is within the public domain or a possible infringement of a valid patent. Thus they increase the overhead costs—and the risks—of every manufacturing enterprise. They also make more costly the litigation necessary to settle patent claims, even when there is an honest difference of opinion. New and small-scale enterprises in particular seldom have funds to expend in legal contests that, by delaying tactics, can be prolonged for three, five, seven years or

18. For surveys of the results of patent litigation before and after the radical change during the 1930's in the views of the Supreme Court on the question of patentable invention, see Kenyon, *Sore Spots in the Patent System*, 24 J. OF PATENT OFFICE SOC. 458, 469 (1942); Cole, *Patent Law Trends*, 26 J. OF PATENT OFFICE SOC. 233, 252-55 (1944). Whereas from 1900 to 1930, the Supreme Court invalidated 35 out of 62, or 56.6% of the patents challenged in cases reaching that tribunal, from 1930 to 1943 it invalidated 30 out of 37, or 81%. Cole found a similar trend, though with a lag, in the decisions on patents by lower federal courts. *Loc. cit. supra*.

19. The late Frederick P. Fish, former president of American Telephone and Telegraph Co., general counsel of United Shoe Machinery Co., and a leading member of the patent bar, testified that "My personal view is that not one patented invention in ten is worth making." *Hearings before the Committee on Patents on H.R. 5011, 5012 and 7010*, 66th Cong., 1st Sess. 63 (1919).

more.²⁰ Such firms usually find it more profitable to capitulate and negotiate a license or accept a trade agreement that will give them an assured, though minor, position in the market in return for ending competition.²¹

On the other hand, in some industries large and small firms alike have tried to rid themselves of the nuisance and expense of continual patent litigation and negotiation by reciprocal, royalty-free cross-licensing agreements. But as the automobile industry has found, to try to by-pass the patent system in this way and free a developing technology from its restrictions cannot eliminate heavy expense for "patent protection." Such cross-licensing arrangements are not wholly successful, because they leave the manufacturers exposed to a steady barrage of shake-down demands by outsiders who collect patents and patent applications for this specific purpose. Since the contents of patent applications are secret, and it is so easy to get patents even on meretricious claims, these tactics are hard to combat. After describing the experience of the Ford Motor Company in this connection its patent counsel declared, in response to the question whether he thought the patent law served a useful purpose: ". . . we feel at times that, viewing the matter from the standpoint of being made the defendant in all sorts of harassing litigations, our general feeling is that the system has got to the point where the tail is wagging the dog, and that it isn't acting 100 per cent to promote progress, but in many instances is used to impede progress."²²

ABUSES OF PROCEDURE

In procedural matters, also, the patent system, as it has actually operated, has helped to throttle competition and frustrate the advancement of "useful Arts." An astute patentee can prolong the legal monopoly in an invention far beyond the 17-year term of the patent itself simply by keeping the application "alive" for many years in the Patent Office. The law permits an applicant to file amendments to his claims, to divide applications in which the claims cover more than a single invention, and to take three months, if he chooses, to revise an application in response to objections of Patent Office examiners.

By judiciously stringing out a series of such formal changes, some of

20. For example, the Aluminum Company of America liquidated the Cowles Bros. enterprise after ten years of patent litigation. Even though the Cowles' patents were eventually upheld and their process found not to infringe Alcoa's patents, the drain on their resources was too great for them to continue competition. They became discouraged and sold out. See STOCKING AND WATKINS, CARTELS IN ACTION 221-22 (1946).

The United Shoe Machinery Company affords another classic example of how a giant industrial consolidation can tie up and wear down competitors by patent infringement litigation. For a discussion of United Shoe Machinery's tactics that have enabled it to reverse the roles of Gulliver and the Lilliputians in the fable, see HAMILTON, PATENTS AND FREE ENTERPRISE 59-60 (TNEC Monograph 31, 1941).

21. See cases discussed in later pages of this article, in particular the glass container, wall-board, salt, gypsum and electric circuit breaker monopolies.

22. TNEC Hearings, pt. 2, 279; see also pp. 256-376.

which could and should have been anticipated while others may be quite inconsequential, the applicant may keep the essential "invention"—if there is one—out of the public domain almost indefinitely. In one instance, an inventor succeeded in maintaining an exclusive right in his novel device for 53 years—for sound-recording on films.²³ Moreover a "slumbering" application in the Patent Office can be used, if drafted in broad and nebulous terms, as a convenient sponge for absorbing new developments in the industrial art as they unfold, from whatever quarter those developments may come.²⁴ And such pending applications can be used most effectively, as experience shows, to block improvements of which competitors may be the real originators.²⁵

INTERFERENCE AGGRAVATES DELAYS

The procedure technically known as an "interference" aggravates the evils of delay in completing patent applications. When the Patent Office receives two or more applications covering substantially the same invention it declares them in interference, sets a date for a hearing, and requires the applicants to submit evidence in support of their respective claims to priority.

23. Patent No. 1,203,190 issued to one Fritts in 1916 after the application had been pending 36 years. The Patent Office itself computed the permissible term of protection under the rules in force in 1938 as 44 years. See testimony of the Commissioner of Patents, *TNEC Hearings*, pt. 3, pp. 860 and 1133.

24. See testimony of G. H. Willitts, a patent attorney and secretary of "a group of 50 large manufacturing concerns," in *Hearings before the Committee on Patents on H.R. General Revision of the Patent Laws, 72nd Cong., 1st Sess. 69-72 (1932)*: "There is another angle of the long-pending case that is particularly grievous. . . . There are some companies that carry patent practice to extremes, and one of their favorite stratagems is this: They file large numbers of patent applications; they keep them in the Patent Office as long as they can—perhaps they are already established in their field. . . . They are afraid a competitor may come along with something just as good. . . . As a competitor comes out with a new machine . . . they look through all their pending applications, which may run into several thousand, and see if they can't find some similarity, no matter how far-fetched, but some similarity between the competitive machine and this matter that is in the pending application, then they will write claims into the pending application covering this competitor's machine, and in a short time come out with a patent, make charges of infringement, and bring suit. That is not accidental. It is a policy of certain companies. . . . Now, that thing has happened to industry after industry. . . . [T]hese difficulties . . . have affected . . . most of the major industries in the United States. . . . You are led into a trap . . . and then the trap is sprung on you."

25. Mr. H. R. Smith, secretary-treasurer and later president of Hartford-Empire, the patent-holding company dominating the glass container industry, succinctly and frankly described the patent policy of his company as follows:

"In taking out patents we have three main purposes—

"(a) To cover the actual machines which we are putting out and prevent duplication of them. . . .

"(b) To block the development of machines which might be constructed by others . . . using alternative means. . . .

"(c) To secure patents on possible improvements of competing machines so as to 'fence in' those and prevent their reaching an improved stage." *United States v. Hartford-Empire Co.*, 46 F. Supp. 541, 611-12 (N.D. Ohio 1942).

In carrying out this policy the company found it convenient to acquire licensing control over more than a thousand patents, 717 of which it owned outright. See *id.* at 618; and *TNEC Hearings*, pt. 2, p. 380.

The examiners who conduct the hearings possess no powers to subpoena witnesses and demand that specific documents be submitted for the record. The evidence offered customarily consists of *ex parte* depositions. The contestants not appearing in person, the examiner has no alternative but to assume their veracity. In any case, the proceedings afford no opportunity for a public prosecutor to examine or cross-examine witnesses under oath; the public interest, lacking a champion, goes by default.

Not only are interference proceedings costly and long drawn out, frequently lasting three or four years or longer,²⁶ but their very nature encourages fraud and collusion.²⁷ The Commissioner of Patents himself testified as follows in 1939:

"There is no question that the interference procedure has been greatly abused and that in some instances it has been invoked for unworthy purposes, as, for example, to delay a competitor's application in the Patent Office. . . . it is the unanimous opinion of the officials of the Patent Office and virtually the consensus of the patent bar and the public that the interference practice should be reformed."²⁸

Nine years later it remained, nevertheless, essentially unchanged, despite minor improvements introduced in 1940 to overcome obstructive delays.

THE ABUSE OF "REISSUES"

Another procedural abuse that has helped business erect patent barricades against competition is the enlargement of the scope of "reissues"—in nontechnical terms, amended patents. On application, the Patent Office may substitute for an outstanding patent another running for the same period but with modified claims.

In authorizing reissues Congress expressly limited the privilege to the

26. Hamilton states that the average pendency of interference proceedings in the Patent Office is three years, and of those that are carried into court, four and a half years. HAMILTON, PATENTS AND FREE ENTERPRISE 128 (TNEC Monograph 31, 1941). On the costliness of interference practice and the handicap it imposes on small concerns trying to compete with companies that command "large resources," see the testimony of Dr. Vannevar Bush, *TNEC Hearings*, pt. 3, p. 880. The "large resources" to which Dr. Bush referred were financial resources, of course—not technical resources.

27. For an exceptionally noisome example in confirmation of this statement, see *Precision Instrument Mfg. Co. v. Automotive Maintenance Mach. Co.*, 324 U.S. 806, 65 Sup. Ct. 993, 89 L. Ed. 1381 (1945). The Supreme Court directed the dismissal of Automotive's suit for infringement because, though it was the owner of a valid patent, it had connived with its competitor, Precision, to settle an interference proceeding involving a patent application by one of Precision's founders *after* it had learned that that application was founded on fraud and perjury. By negotiating a settlement, Automotive obtained a patent on the perjured application and thus fortified its hold on the market. At the same time it granted Precision a license, allotting its unscrupulous competitor a small share of the market, and got a promise from that company never to question the validity of any Automotive patent—not even the one that both parties knew was tainted with fraud. Precision's perfidy in disregarding its license restrictions was the occasion for the instant suit. But because Automotive did not come into court "with clean hands," the court declared "That the actions of . . . Precision may have been more reprehensible is immaterial." 324 U.S. at 819.

28. *TNEC Hearings*, pt. 3, p. 861.

correction of mistakes. In practice, however, the Patent Office and the courts permitted patentees not only to disclaim some elements of the alleged invention, and thus save "claims" stated in such broad terms that a court would probably hold them invalid, but also to add new elements to the claimed invention.²⁹

As in the case of the amendment of applications, reissues may bring under patent protection features of the general advance in the industrial arts that might not themselves amount to patentable invention and for which, in any event, the patentee may not be primarily responsible. In this way, an alert and aggressive corporation can fortify its patent position and continually reinforce its dominance of the market.

INFRINGEMENT SUITS

The most effective weapon in the patents arsenal for harassing competitors and thwarting the development of new rivals is the infringement suit.³⁰ A large company with a formidable collection of patents and ample financial resources can impose an insupportable burden on a small enterprise by forcing it to defend its right to use techniques or to manufacture products that, as it eventually turns out, may be entirely in the public domain. Even the most scrupulous care to avoid invasion of existing patent rights cannot render the small company immune from infringement litigation. For it costs as much—if not more—to defend an infringement suit as to prosecute it. A small competitor can stand the financial strain only so long before it succumbs to its more powerful rival.

Even though the principal issue may be whether the government im-

29. See, *e.g.*, *Topliff v. Topliff*, 145 U.S. 156, 12 Sup. Ct. 825, 36 L. Ed. 658 (1892); *Corbin Cabinet Lock Co. v. Eagle Lock Co.*, 150 U.S. 38, 14 Sup. Ct. 28, 37 L. Ed. 989 (1893); *Crown Cork & Seal Co. v. Aluminum Stopper Co.*, 108 Fed. 845 (4th Cir. 1901); and *Perfection Bed Co. v. Murphy Bed Co.*, 266 Fed. 698 (9th Cir. 1920), *cert. denied*, 254 U.S. 652 (1920).

The more vigilant scrutiny that the Supreme Court has given to Patent Office procedure and to patent restrictions generally in recent years has narrowed greatly the permissible changes in patent specifications and claims on reissue. See, for example, *U.S. Industrial Chemicals, Inc. v. Carbide & Carbon Chemicals Corp.*, 315 U.S. 668, 62 Sup. Ct. 839, 86 L. Ed. 1105 (1942), *reversing* 121 F.2d 665 (4th Cir. 1941).

30. As *Fortune* magazine described it: "The most versatile of all devices . . . is the infringement suit, one of the most expensive forms of litigation. The infringement suit can be used not only as a simple legal action to stop someone from stealing your invention, but also as a controlling device with a wide range of action all the way from the veiled threat to the punitive war. A competing product, process, or machine is challenged. . . . If both patents and the patent-owning corporations seem to be of equal weight, the dispute is likely to be settled out of court with a cross-licensing agreement between the two. If the challenged company is fairly small, but its patent sound, it is likely to be forced, in lieu of incurring . . . [heavy] expense . . . , to accept a license under the challenger's patent setting rigid price and production limits. This may continue . . . all the way out to an open reign of terror not only against the alleged infringer but against all of his customers. . . . More time, money, and energy have sometimes gone into this kind of warfare than ever went into the original technological development." From *War and Peace and the Patent System*, 26 *FORTUNE* [No. 2] 103, 105, 132 (Aug. 1942).

providently granted the patent, and even though the benefits of successful defense accrue to the public, a private business must bear the entire cost of defending an infringement suit. In this way the patent system plays into the hands of monopolies. It also imposes a one-sided and unfair handicap on competitive enterprises by obliging them, at their own expense, to defend the *public* interest in keeping an advancing technology open to common use—except for exclusive rights in bona fide inventions. If an inventor himself, or an alleged infringer, could obtain at public expense a judicial determination of the validity of any of the thousands of patents issued almost promiscuously by the Patent Office, it would deprive monopolies founded on patents of much of their power to perpetuate themselves.

A company which sedulously uses patents to strengthen its monopoly may fear to challenge an upstart competitor directly, lest some or all of the patents allegedly infringed be held invalid. But in that case it can proceed indirectly, with less risk, by threatening the competitor's customers with suits for contributory infringement. Seldom will customers regard continued commercial relations with a particular supplier so important as to make it worth while for them to contest such a challenge.³¹ Thus, the patentee-monopolist can, in effect, create a boycott against a fledgling rival. At the same time it can keep intact its imposing array of letters patent, even though these may amount to nothing more than a paper façade, and it can use them later against new rivals.

LICENSING AIDS MONOPOLY

If multiplicity of patents and procedural loopholes have indirectly facilitated the use of patents to stifle competition, the broadscope of licensing privileges has directly and substantially helped attain the same end. The power of a patentee to assign his "exclusive rights" to others rests on explicit statutory authorization, and the courts have construed the patent grant as in the nature of a property right.³² And, as an incident of such a right, they

31. In practice the customer ordinarily takes the precaution of stipulating that his equipment supplier must defend contributory infringement suits brought against him if there is any question of conflicting patent rights. But when, as not infrequently happens, the customer also buys or leases some of his equipment from the dominant patent-holding company with which the independent is trying to compete, the defense of invalidity of the patents allegedly infringed may be blocked. The customer's renunciation of any right to challenge the validity of such patents may foreclose the independent's best defense. The Hartford-Empire Company used this strategy to cripple its smaller rivals. In this way it eventually eliminated Amsler-Morton from the annealing oven business in the glass industry. For details, see text *infra*. Recently, however, the Supreme Court has severely limited the enforceability of covenants not to contest the validity of patents. See *Sola Electric Co. v. Jefferson Electric Co.*, 317 U.S. 173, 63 Sup. Ct. 172, 87 L. Ed. 165 (1942); *Scott Paper Co. v. Marcalus Mfg. Co.*, 326 U.S. 249, 66 Sup. Ct. 101, 90 L. Ed. 47 (1945); *Katzinger Co. v. Chicago Metallic Mfg. Co.*, 329 U.S. 394, 67 Sup. Ct. 416, 91 L. Ed. 374 (1947); and *MacGregor v. Westinghouse Electric & Mfg. Co.*, 329 U.S. 402, 67 Sup. Ct. 421, 91 L. Ed. 380 (1947). *But cf.* *American Cutting Alloys, Inc. v. General Electric Co.*, 135 F.2d 502 (2d Cir. 1943).

32. See *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 425, 28

have accorded the patentee the privilege of splitting up his patent through license contracts, pretty much as he may choose.

In virtual disregard of the origin of the grant as a government franchise³³ and of its strictly defined constitutional purpose, judicial opinion in patent cases has stretched to the limits of a barren logomachy the doctrine that "a man can do with his own as he likes."³⁴ Corollaries of this doctrine have been the doctrines that a patentee could suppress his invention altogether if he wished,³⁵ and that, because in his discretion he could refuse to grant licenses under the patent, the patentee could impose such conditions on licensees as he might think fitting.³⁶

The discretionary power of patentees to restrict the use of inventions and to control the business policies of licensees has not always been allowed. It was a distinctive feature of the development of patent law in the fifty years after 1890.³⁷ But even during this period, when the licensing privilege gave a patentee almost complete immunity from the law forbidding "monopolizing," the courts now and then hesitated to go to the full extreme in applying the doctrine. In 1911 the Supreme Court held a patent-licensing scheme for controlling the output and price of sanitary pottery ware a viola-

Sup. Ct. 748, 52 L. Ed. 1122 (1908), where the Court states ". . . patents are property, and entitled to the same rights and sanctions as other property." This dictum ignores, incidentally, the numerous and widely differing limitations that both common and statutory law impose on the use and disposition of different kinds of private property.

See, also, for a more recent case in the same vein, *General Talking Pictures Corp. v. Western Electric*, 304 U.S. 175, 58 Sup. Ct. 849, 82 L. Ed. 1273 (1938), *opinion on rehearing*, 305 U.S. 124, 59 Sup. Ct. 116, 83 L. Ed. 81 (1938). Cf. *Special Equipment Co. v. Coe*, 324 U.S. 370, 382, 65 Sup. Ct. 741, 89 L. Ed. 1006 (1945): "It is a mistake therefore to conceive of a patent as but another form of private property. The patent is a privilege 'conditioned by a public purpose.' *Mercoide Corp. v. Mid-Continent Co.*, 320 U.S. 661, 666 [1944]." (Dissenting opinion of Mr. Justice Douglas.)

33. The public franchise conception of a patent had its clearest and most forceful judicial enunciation in *Bloomer v. McQuewan*, 14 How. 539, 549, 14 L. Ed. 532 (U.S. 1852). It began to lose ground in favor of the private property concept in the last quarter of the nineteenth century. *E.g.*, *March v. Nichols, Shepard & Co.*, 128 U.S. 605, 608, 9 Sup. Ct. 168, 32 L. Ed. 538 (1888). For a half century after 1890, or until its renaissance in *Morton Salt Co. v. Suppiger Co.*, 314 U.S. 488, 62 Sup. Ct. 402, 86 L. Ed. 363 (1942); *Mercoide Corp. v. Mid-Continent Investment Co.*, 320 U.S. 661, 64 Sup. Ct. 268, 88 L. Ed. 376 (1944); and *Mercoide Corp. v. Minneapolis-Honeywell Regulator Co.*, 320 U.S. 680, 64 Sup. Ct. 278, 88 L. Ed. 396 (1944), judicial opinions show only slight traces of it. Cf. Rich, *Patent Practices and the Anti-Monopoly Laws*, 24 J. OF PATENT OFFICE Soc. 85, 88 (1942), where he says that the patent law "went on a spree from 1896 to 1917." But if *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 37 Sup. Ct. 416, 61 L. Ed. 871 (1917), ended the "spree," it did not eliminate a "hang-over." See, *e.g.*, *United States v. General Electric Co.*, 272 U.S. 476, 47 Sup. Ct. 192, 71 L. Ed. 362 (1926) and the *General Talking Pictures* case (1938), *supra* note 32.

34. Cf. HAMILTON, PATENTS AND FREE ENTERPRISE 57-64 (TNEC Monograph 31, 1941).

35. *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 28 Sup. Ct. 748, 52 L. Ed. 1122 (1908).

36. *Leeds & Catlin Co. v. Victor Talking Machine Co.* (No. 2), 213 U.S. 325, 29 Sup. Ct. 503, 53 L. Ed. 816 (1909); and *Henry v. A. B. Dick Co.*, 224 U.S. 1, 32 Sup. Ct. 364, 56 L. Ed. 645 (1912).

37. The outstanding cases that exhibit the evolution of the idea of patent-licensing freedom are *Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.*, 77 Fed. 288 (6th Cir. 1896); *Bement v. National Harrow Co.*, 186 U.S. 70, 22 Sup. Ct. 747, 46 L. Ed. 1058 (1902); and the *Leeds & Catlin* and *A. B. Dick* cases, *supra* note 36, and the *General Electric* case, *supra* note 33.

tion of the antitrust law.³⁸ It interpreted the scheme as practically a fraud on the public. Also, the Court sometimes back-tracked from an advanced position on patent-licensing freedom. Five years after it approved, in the *A. B. Dick* case, a restriction imposed by a patentee on the commercial source of unpatented materials to be used in the patented device, it withdrew that approval in the *Motion Picture Patents* case.³⁹

Nevertheless the courts continued in general to look with tolerance, if not complacency, on the tactics of patentees in drafting license contracts so as to fortify and even extend their monopoly privileges. As late as 1926 the Supreme Court could find nothing to condemn in General Electric's patent-licensing policy that limited the output of its licensees and required them to sell at prices indetical with its own.⁴⁰

Such a broad licensing privilege was an open invitation to use patents to establish unified, arbitrary control over entire branches of industry. If a producer, holding, it might be, some strategic patent, could persuade or coerce other producers to accept licenses, every member of the group could be lawfully bound to pursue a common price and production policy. In fact the law as interpreted permitted such a scheme to go farther and divide whole branches of industry, assigning to each licensee a designated field. In the *General Talking Pictures* case the Supreme Court upheld the right of a licensor to restrict the uses to which either a licensee to manufacture or his vendees might put the patented device. Stated thus, abstractly, the proposition may appear quite innocuous. But its concrete application disclosed its oppressiveness.

The actual licensor in the *General Talking Pictures* case was Western Electric, a subsidiary of American Telephone and Telegraph (AT&T). AT&T in turn was a member along with Radio Corporation of America (RCA) and General Electric (GE) of the electronics pool.⁴¹ The real meaning of the *General Talking Pictures* case was, therefore, that it sanctioned the allocation of fields among these three giants. At any rate, it gave judicial blessing to an arrangement whereby one member of the group (AT&T) reserved to itself the trade in radio tubes (amplifiers) for use in sound reproduction equipment

38. *Standard Sanitary Mfg. Co. v. United States*, 226 U.S. 20, 33 Sup. Ct. 9, 57 L. Ed. 107 (1912). Although this decision did not expressly overrule the *Bement* case, much the same elements that the Court condemned in the *Standard Sanitary* case it had earlier sanctioned in the *Bement* case.

39. *Supra* note 33. The opinion in this case expressly repudiated the *A. B. Dick* ruling.

40. And as late as 1936 the Court of Appeals for the Second Circuit upheld a provision of a patent license, uniform for the several manufacturing licensees, requiring them to sell at a price fixed by the licensor patent-holding company unpatented products made on a patented machine. *Straight Side Basket Corp. v. Webster Basket Co.*, 82 F.2d 245 (2d Cir. 1936), *affirming* 10 F. Supp. 171 (W.D.N.Y. 1935).

41. On the structure and status of the electronics pool, see Petro, *Patents: Judicial Developments and Legislative Proposals*, 12 U. OF CHI. L. REV. 80 & 352, 372-80 (1945); WALDROP AND BORKIN, *TELEVISION: A STRUGGLE FOR POWER* (1938); and WOOD, *PATENTS AND ANTITRUST LAW* 128-45 (1942).

in theaters. The principle of the case would similarly sustain the allotment to the other members of the pool of other "uses" for, or parts of the trade in, this patented device.

Two important incidents of the extremely broad licensing privilege were those permitting a patentee (a) to stipulate that his licensees should under no circumstances challenge the validity of the patents involved and (b) to require reciprocal licensing. The judicial doctrine of estoppel was sometimes invoked to block any effort of a licensee to attack the validity of the patents under which he was licensed, even without any express contractual limitation on his right to set up such a defense in an action for infringement.⁴² But it was safer to bind the licensee not to question a licensor's patent rights than to trust to invocation of the principle of estoppel.⁴³

Apparently the legality was never questioned of a patentee's making it a condition of a license that the licensee reciprocate by granting him a cross-license under whatever patents the licensee might possess in the same field. The extension of this assumed right to cover not only a licensee's improvements in the licensed process but whatever future patents he might acquire in the same general field was easily made.⁴⁴ By stipulations of reciprocal licensing, patentees with a strongly fortified patent position sometimes undertook to establish prior claims on all patents in a broad field of technology.

THE CASES OF RUBBER AND ELECTRIC LAMPS

When the Standard Oil Company of New Jersey obtained from I. G. Farbenindustrie an assignment of IG's Buna rubber patents, Standard Oil submitted to rubber manufacturers a draft of a uniform licensing agreement that would have made almost impossible the development of any synthetic rubber technique outside its control. The provisions of the proposed contracts required each rubber company to license reciprocally to Standard Oil not only all its existing patents on Buna-type synthetics and all improvement patents but also whatever patents it might subsequently acquire on alternative processes. Standard Oil's patent attorney described this provision as follows:

"The agreement as it is now drafted will lead to the centering of all patent rights of licensees in the hands of licensor, with no outflow of those rights except to customers of licensor. . . .

All manufacturing patent rights of licensees will help to build up licensor's

42. The leading case is *United States v. Harvey Steel Co.*, 196 U.S. 310, 25 Sup. Ct. 240, 49 L. Ed. 492 (1905).

43. As mentioned before, the enforceability of such covenants has lately come into question, particularly since the *Sola* decision in 1942, *supra* note 31. But see Mr. Justice Frankfurter's vigorous protest against this overthrow of a "century-old" precedent, in his dissenting opinion in *Altvater v. Freeman*, 319 U.S. 359, 366, 63 Sup. Ct. 1115, 87 L. Ed. 1450 (1943).

44. The first clear-cut decision on this issue by a court of final jurisdiction appears to have been *Transparent-Wrap Machine Corp. v. Stokes & Smith Co.*, 329 U.S. 637, 67 Sup. Ct. 610, 91 L. Ed. 563 (1947). The Supreme Court upheld the reciprocal licensing covenant here involved, but the licensee had an exclusive license.

dominating position. . . . In other words, this is not a cross-licensing agreement, but one in which patents are piled on patents in the hands of one centralizing company."⁴⁵

A patent-licensing privilege so broad that it permits the use of one or a few patents to tie up all other patents in a certain field of technology obviously promotes domination of whole branches of industry by patent-holding companies. By the use of this device a company can perpetuate an industrial monopoly obtained through the leverage of a 17-year patent grant. And once it attains a dominant position, it may be less urgent for it to continue vigorously to subsidize technical research. In practice many such companies—for example, AT&T, General Electric, United Shoe Machinery, Hartford-Empire, and du Pont—do persevere in research. A company can achieve the greatest security if it combines leadership in technological development with a system of license contracts, whereby the "leader" shares its patents with smaller companies and requires its licensees continually to reinforce its dominant patent position by handing over to it control of all advances in that branch of the industrial arts.

The electric lamp industry illustrates how broad licensing privileges may retard technological progress by restricting the research efforts of licensees. In the recent antitrust suit against General Electric the government charged General Electric's cross-licensing contracts as such had deterred licensees from expanding research. The court thought this was a matter of conjecture because the evidence showed that the licensees had in fact spent substantial sums on research. But it declared that "the vice lies in the clause establishing a quota on sales of the incandescent lamp. This placed 'B' licensees in such a position that with their income circumscribed to a given fraction of General Electric sales, they could not support expenditures necessary to operate extended research and engineering development projects."⁴⁶ The restrictive influence that cross-licensing provisions have exerted on research has not been confined to the electric lamp field. As Mr. Justice Reed has said:

"Where two or more patentees with competitive, non-infringing patents combine them and fix prices on all devices produced under any of the patents, competition is impeded to a greater degree than where a single patentee fixes prices for his licensees. The struggle for profit is less acute . . . *The stimulus to seek competitive inventions is reduced by the mutually advantageous price-fixing arrangement.*"⁴⁷

45. "Investigation of the National Defense Program," *Hearings before a Special Committee of the U.S. Senate Pursuant to S. Res. 71, 77th Cong., 1st Sess. pt. 11, Ex. 383, p. 4605.*

46. *United States v. General Electric Co.*, 82 F. Supp. 753, 858 (D.N.J. 1949). Counsel for Tungsol, a General Electric licensee, expressed the matter this way: ". . . a lamp licensee had no inducement to develop new inventions if General Electric Company can freely take whatever they develop." *Id.* at 857. And a General Electric official expressed it as follows: "Westinghouse has never done and probably will never do their real share of the work in these fields. They can't afford to because we would reap three-fourths of their purely creative work." *Ibid.*

47. *United States v. Line Material Co.*, 333 U.S. 287, 311, 68 Sup. Ct. 550, 92 L. Ed.

EVILS OF PATENT ACCUMULATION

The simplest and most obvious way of using patents to suppress competition is by concentrating in one organization control of all or most of the patents in a particular field. One method of doing this is for a company to accumulate as many patents as it can lay hold of, either by assignment from its own research staff or by purchase from outside persons. The accumulation of patents in the hands of a single company has attained fantastic proportions in some industries. In the mid-1930's AT&T owned more than 9,000 patents and held licenses under 6,000 others, General Electric controlled more than 8,000 patents, and United Shoe Machinery more than 6,000.⁴⁸ Such formidable aggregations of "exclusive rights" amount in practice to much more than a 17-year grant of monopoly. They tend to assure a perpetual monopoly.

The fallacy that "the whole is only the sum of the parts" has few more striking demonstrations than here. If Mr. Justice Holmes had been fully aware of the implications of his own dictum that "the life of the law is experience, not logic," he could hardly have made the following statement in the first *Shoe Machinery* case:

"It is said that from 70 to 80 per cent of all the shoe machinery business was put into a single hand. . . . But taking it as true, we can see no greater objection to one company manufacturing 70 per cent of three non-competing groups of patented machinery collectively used for making a single product than to three corporations making the same proportion of one group each."⁴⁹

With this reasoning the Supreme Court upheld the lawfulness of a combination that brought together the business and patents of four distinct groups of companies, all making shoe machinery but none producing a complete line. Yet the monopoly power of the several constituents of United, based on their respective patent holdings, was certainly increased under the consolidation's policy of making available to shoe manufacturers any particular type of machine only on condition that they also lease or purchase United's patented, and even unpatented, equipment of other types. Under this "full-line forcing" policy, the patent-monopoly powers of Goodyear, McKay, Consolidated and Eppler were raised to an industrial monopoly level.⁵⁰

649 (1948), 1 VAND. L. REV. 664 (italics supplied). See, in general, Thomas, *The Patentee's Dilemma—Is Price Fixing Legal?* 4 MIAMI L.Q. 313 (1950).

48. See FCC, TELEPHONE INVESTIGATION (PROPOSED REPORT) 267 (1938); HAMILTON, PATENTS AND FREE ENTERPRISE 60 (TNEC Monograph 31, 1941).

49. *United States v. Winslow*, 227 U.S. 202, 217, 33 Sup. Ct. 253, 57 L. Ed. 481 (1913). The explanation of Mr. Justice Holmes' reference to three companies instead of four is that the fourth group of companies was acquired shortly after the organization of United Shoe Machinery Corporation. The original combination brought together the Goodyear companies, the McKay companies, and the Consolidated Shoe Machinery Company. With the Eppler companies, which came in almost immediately afterward, the consolidation controlled—and still controls—about 90% of the shoe machinery produced in the United States. These four groups of companies operated independently before the merger and their business was competitive to the extent that the lines of machinery each group manufactured overlapped to some extent the types of machinery one or more of the other companies produced, as they did in the past.

50. Full-line forcing was outlawed by decree after the passage of the Clayton Act.

BARRICADES AGAINST COMPETITION

Multiplicity of patents greatly facilitates the raising of formidable patent barricades against competition. As Judge Clark tersely put it: "Clearly, in the multiplicity of patents lies the opportunity for pooling, for unfair competition, and for in terrorem suppression. . . . Multiplicity of trivial patents furnishes the field in which the trust operates."⁵¹

But the ease with which patents may be obtained from the Patent Office is only one factor contributing to the erection of barricades. Supplementing it is the ease with which a giant consolidation can buy patents from free-lance inventors. When a single company controls through patents most of the equipment used or the different types of products manufactured in a certain branch of industry, it severely restricts the opportunity of independent inventors to dispose of their inventions, and except in the rare case of a basic patent it practically extinguishes their opportunity to exploit them independently. The only possible purchaser of patent rights applicable in that field can in effect dictate the terms on which it will buy them.⁵² Facing a single buyer, and that buyer fortified with financial resources far exceeding those at his own disposal, the independent inventor is under a severe handicap. He has practically no alternative but to assign his patent, and so he hands it over on such terms as the single buyer may offer. Of the 715 patents that Hartford-Empire accumulated prior to 1939, more than half represented assignments from outside parties.

The continual accumulation by a single dominant company of patents for new techniques invented by outsiders is in many ways comparable to the steady absorption of independent producers through mergers. The purchase of such patents is in one sense tantamount to acquisition of potential competitors. Not every patent, of course, affords a practicable basis for new enterprise. But if, out of the many patents issuing to independent inventors, those bearing on the technology of a certain industry were beyond the reach of its dominant patentee, then new inventions would soon make possible competitive enterprise. The pre-emptive and preclusive rights that a dominant patentee in fact holds over new technological developments in its field greatly facilitate indefinite continuance of monopolistic control.

Furthermore, such a combination as United Shoe Machinery eliminates the incentive each of the constituents would have, as an independent producer,

See *United Shoe Machinery Corp. v. United States*, 258 U.S. 451, 42 Sup. Ct. 363, 66 L. Ed. 708 (1922).

51. From his testimony in "Pooling of Patents," *Hearings before Committee on Patents on H.R. 4523*, 74th Cong., 1st Sess. 1077-80 (1935).

52. On the handicap that concentration of patent ownership imposes on the independent inventor, see *id.* at 1075-76. After quoting corroboratory statements by such experienced inventors as Edison and Baekeland and such distinguished lawyers as Brandeis and Fish, Judge Clark said that the aggregation of patents by industrial monopolies gives them "an unfair advantage in bargaining for patents for improvements" and "automatically closes the market to outside inventors."

to "round out" its line of patented techniques or products. The Goodyear companies, with a special interest in welting machines, would have had a strong competitive interest had there been no merger, to introduce and perfect a line of lasting machines that would not infringe the patents on such equipment of the Consolidated and the Eppler companies. But after the merger United Shoe Machinery was obliged only to buy up any new technical developments in lasting machines—or any other type of shoe machinery—that might threaten its exclusive control of the industry. And this it apparently has done, as occasion demanded.⁵³

EVILS OF CROSS LICENSING

Another method of using patents to block competition is for a group of companies to pool or cross-license their respective patents, so that all licensees operate under restrictions mutually arranged. Cross-licensing may be justifiable in some instances. An invention is seldom the work of one inventor. Usually many technicians are experimenting in the same field, at the same time, trying to solve the same problems. Different experimenters working independently may, and frequently do, simultaneously find different ways of achieving the same objective. Some features of a device or some steps in a process worked out by different inventors may be identical. More commonly, one process or device will supplement another. Each may represent a genuine invention and so be patentable. If patents are issued in such circumstances one may block the other: the commercial use of one depends on its exploitation in conjunction with the other. Cross-licensing enables both patentees, very often, to take advantage of each other's inventions, while avoiding the expense of infringement suits. Such was plainly the object of the royalty-free cross-licensing agreement in the automobile industry and apparently also of that in the aircraft industry with its provision for arbitration of royalties.⁵⁴

Historically, then, the reason for cross-licensing is found in efforts to overcome reciprocal blockages; and even today it is used in some industries for a similar purpose: to free a rapidly developing technology from the trammels of monopoly privileges. But in other industries cross-licensing has come to serve other purposes. Currently a cross-licensing agreement is often a result of connivance among a group of competitors to circumvent—legally—their obligation to avoid restraining trade. The cross-licensed patents may have no technical interdependence and no one of them may be so important that its use is indispensable. The main purpose of such cross-licensing agree-

53. *But Business Is Always Good*, 8 FORTUNE [No. 3] 34 (Sept. 1933); see also *Business at War*, 30 FORTUNE [No. 5] 208, 214 (Nov. 1944).

54. For a review of the operation of various cross-licensing agreements, see "Pooling of Patents," *supra* note 51 *passim*. The Committee listed (p. 1145) a score of such agreements then (1935) in existence having an industry-wide compass.

ments is not to make technology available; it is to make competitive pricing and competitive expansion of production impossible.

Before the drastic revision of patent law interpretation wrought by the New Deal appointees to the Supreme Court, the leading case on patent pooling was that of the Standard Oil Company (Indiana), decided in 1931.⁵⁵ Several of the major oil companies had independently developed various methods of increasing the proportionate output of gasoline from the refining process by distillation of crude oils under pressure, that is, by "cracking." Numerous patents covered these improvements, and though at least some of them might have been exploited independently the patentees believed that elimination of competition in their use would facilitate commercial exploitation. They therefore formed a patent pool. By mutual agreement they fixed royalties on the several cross-licensed processes, established conditions for license eligibility, and divided the royalty revenues among the members in predetermined proportions. Primarily on the ground that members of the pool produced only a small percentage of the entire volume of motor fuel manufactured in the United States, so that refiners using the pooled cracking patents faced effective competition from refiners producing only straight-run gasoline, the Supreme Court sanctioned the arrangement when the government assailed it as a violation of the antitrust laws.

COURTS HIT MONOPOLY USE OF PATENTS

In a series of twelve cases beginning in 1939, however, the courts have consistently outlawed the use of patents to monopolize trade or stifle competition. The first case in the series involved the same industry and many of the same defendants as the cracking-patents case. Standard Oil Company of New Jersey acquired, jointly with General Motors and du Pont, patents on a tetraethyl lead compound for mixture with gasoline to improve its octane rating. The three partners organized Ethyl Gasoline Corporation, which sold the antiknock fluid to licensed refiners under a restrictive covenant that they would supply lead-treated gasoline only to Ethyl-licensed jobbers and retailers. Ethyl required its dealer-licensees to sell the gasoline only at prices fixed by it, and refused licenses to distributors known as price cutters. The Supreme Court condemned this industry-wide licensing system as a price-fixing scheme.⁵⁶

Two years later, the Court struck down two attempts by patentees to extend their respective monopolies on patented devices by monopolizing un-

55. *Standard Oil Co. (Indiana) v. United States*, 283 U.S. 163, 51 Sup. Ct. 421, 75 L. Ed. 926 (1931).

56. *Ethyl Gasoline Corp. v. United States*, 309 U.S. 436, 60 Sup. Ct. 618, 84 L. Ed. 852 (1940).

patented materials used in conjunction therewith.⁵⁷ In these cases the Court for the first time took the position that an appropriate remedy for such a misuse of the patent was judicial withholding of equitable relief for infringement. This amounted, in effect, to forfeiture of the patents involved.

In the same year, the Court also held illegal two schemes closely comparable to that condemned in the *Ethyl* case. The first case involved a regimentation of the distributive trade under a licensing system, with resale price restrictions.⁵⁸ The second case involved a *del credere* "agency" arrangement that not only tied up the dealers but also divided the market among the various hardboard-manufacturing concerns.⁵⁹

In 1944, a patent-licensing scheme for uniting under the domination of a single holding company all manufacturers of thermostatic control devices met a similar fate.⁶⁰ The following year witnessed the partial dissolution of the patent pool in the glass container industry.⁶¹

The titanium pigments cartel, in which National Lead and du Pont played leading roles, cross-licensed their respective patents with foreign producers, and suppressed all competition in the domestic market, encountered judicial disapproval in 1947.⁶² In the same year International Salt's patent-licensing system ran up against the same legal barrier that the Court had erected to block a similar arrangement in the *Morton Salt* case.⁶³ Finally, in 1948 the Supreme Court applied the ax to two more patent-licensing schemes that involved combinations among otherwise competitive manufacturers mutually to fix prices. The first involved a series of license agreements that after 1937 embraced all manufacturers of gypsum wallboard and required them to sell at uniform prices.⁶⁴ The second arose out of a simple cross-licensing agreement on drop-out fuse cutouts (for use in electric circuits) to settle an interference proceeding in the Patent Office and to enable the patentees to use two mutually inhibitory, or "blocked," patents. But this cross-licensing agreement led to a concerted price-fixing arrangement among all the principal producers. This, said the Court, "is more than an exploitation

57. *Morton Salt Co. v. G. S. Suppiger Co.*, 314 U.S. 488, 62 Sup. Ct. 402, 86 L. Ed. 363 (1942); and *B. B. Chemical Co. v. Ellis*, 314 U.S. 495, 62 Sup. Ct. 406, 86 L. Ed. 367 (1942).

58. *United States v. Univis Lens Co.*, 316 U.S. 241, 62 Sup. Ct. 1088, 86 L. Ed. 1408 (1942).

59. *United States v. Masonite Corp.*, 316 U.S. 265, 62 Sup. Ct. 1070, 86 L. Ed. 1461 (1942).

60. *Mercoird Corp. v. Mid-Continent Investment Co.*, 320 U.S. 661, 64 Sup. Ct. 268, 88 L. Ed. 376 (1944); and *Mercoird Corp. v. Minneapolis-Honeywell Regulator Co.*, 320 U.S. 680, 64 Sup. Ct. 278, 88 L. Ed. 396 (1944).

61. *Hartford-Empire Co. v. United States*, 323 U.S. 386, 65 Sup. Ct. 373, 89 L. Ed. 322 (1945). For a detailed account of this proceeding, see text *infra*.

62. *United States v. National Lead Co.*, 332 U.S. 319, 67 Sup. Ct. 1634, 91 L. Ed. 2077 (1947).

63. *International Salt Co. v. United States*, 332 U.S. 392, 68 Sup. Ct. 12, 92 L. Ed. 20 (1947).

64. *United States v. United States Gypsum Co.*, 333 U.S. 364, 68 Sup. Ct. 525, 92 L. Ed. 746 (1948).

of patents. There is the vice that patentees have combined to fix prices on patented products." 65

Most of these cases involved licensing or cross-licensing arrangements that went much further than those judicially sustained in the cracking-patents case, and some even went beyond the limits set down in the *General Electric* case. Without exception the license restrictions condemned involved attempts to fix prices, to limit output or to control channels of distribution. In these twelve cases, in other words, the patent-holding groups were trying to push to its logical extreme the doctrine of the cracking-patents case. The outcome indicates that the courts have in late years greatly narrowed the scope of patent-licensing and cross-licensing arrangements. Though the *General Electric* and the *Standard Oil Company of Indiana* decisions have never been overruled, it is at least doubtful that either still represents a valid and binding precedent.

PATENT ABUSES IN GLASS

The practices of no single company—indeed, the business arrangements of no single industry—illustrate all the abuses to which the patent system is subject. Misuse of patents apparently is so widespread and takes so many different forms that it would require almost a comprehensive survey of American manufacturing to cover the subject exhaustively. Nevertheless, a single recent case—concerning the Hartford-Empire Corporation—gives a fairly clear picture of the concrete circumstances and specific results of various methods of using patents to restrain trade.⁶⁶ This case is noteworthy, not only as a striking example of the consequences of patent abuses in terms of market

65. *United States v. Line Material Co.*, 333 U.S. 287, 314-15, 68 Sup. Ct. 550, 92 L. Ed. 701 (1948). The court, with only eight justices sitting, split three ways. Four of the eight, speaking through Mr. Justice Douglas, favored explicitly overruling the *General Electric* case; but the majority opinion, by Mr. Justice Reed, rejected that step as unnecessary. See Schueller, *The New Antitrust Illegality Per Se: Forestalling and Patent Abuse*, 50 COL. L. REV. 170, 184-95 (1950); Thomas, *The Patentee's Dilemma—Is Price Fixing Legal?* 4 MIAMI L.Q. 313 (1950); 1 VAND. L. REV. 664 (1948).

66. *United States v. Hartford-Empire Co.*, 46 F. Supp. 541 (N.D. Ohio 1942), modified and aff'd, *Hartford-Empire Co. v. United States*, 323 U.S. 386, 65 Sup. Ct. 373, 89 L. Ed. 322 (1945); on the Government's petition for a clarification of the judgment, directives to the trial court were amended in minor respects, 324 U.S. 570, 65 Sup. Ct. 815, 89 L. Ed. 1198 (1945).

The case began with a complaint filed December 11, 1939. After a trial lasting 112 days and resulting in a printed record running to 16,500 pages, the trial judge gave an exhaustive summary of the evidence in 628 findings of fact. He also filed 89 conclusions of law, and the Supreme Court set a modern record by allowing 19½ hours for argument. Both courts held that the defendants had clearly violated the antitrust laws. The only significant difference in their views related to the severity of the penalty to be imposed. The majority of the Supreme Court refused to sanction the provision of the lower court's decree requiring royalty-free licensing of defendants' patents. Instead, the Supreme Court directed the trial court to enter a decree stipulating compulsory licensing with reasonable royalties. The Supreme Court also directed the trial court to terminate immediately the involuntary receivership that it had imposed on Hartford-Empire as a means of insuring compliance with the terms of the decree.

The revision of the District Court's decree in these two important respects encountered vigorous dissents from Justices Black and Rutledge.

control but also as a landmark in the integration of patent law and antitrust law.

The glass industry is composed of two major parts, organized as distinct branches of trade. These are the sheet-glass and the glass container industries.⁶⁷ Two companies dominate the sheet-glass industry: Pittsburgh Plate Glass and Libbey-Owens-Ford. Their operations are closely interlocked through patent cross-licensing agreements resembling those in the glass container field.⁶⁸

The glass container branch of the industry manufactures bottles and bulbs for electric lamps. The Corning Glass Works completely monopolizes the electric lamp bulb business, and it is also an important producer of such specialty products as heat-resistant ware and glass tubing.⁶⁹ In the bottle field proper five producers practically blanket the field. They are Owens-Illinois, Hazel-Atlas, Thatcher, Ball Brothers and Anchor-Hocking. These companies produced in 1937 about 70% of the total domestic output of glass containers. The 35 other manufacturers in the field were to all intents and purposes not competitors of the "Big Five." For their output of such staples as medicine, beer and milk bottles, fruit jars and packer's ware for food products such as ketchup, meats and coffee was insignificant. Their main trade consisted of specially shaped bottles for perfumes, soft drinks, hair tonics, and the like.

Of the "Big Five," Anchor-Hocking, the third largest, appears to have operated independently; it was early dismissed as a defendant. The other four were all intimately interconnected through patent license agreements with Hartford-Empire, which itself manufactured no glassware. The largest member of the group was Owens-Illinois. Its shipments in 1938 were more than the combined shipments of the others. In fact, Owens-Illinois shared with Hartford-Empire virtually a dictatorship of the whole industry.

67. Several other branches of the industry contribute in a small way to the total output of glass products. The oldest of these minor branches of the industry makes pressed ware such as table tumblers. Another minor branch makes specialty ware such as optical lenses, photographic lenses, and ornamental figures. In recent years many new types of glass ware have appeared on the market such as fibre glass for insulation and glass blocks for building construction.

On the historical development and the structural peculiarities of the glass industry, see WATKINS, *INDUSTRIAL COMBINATIONS AND PUBLIC POLICY*, c. 8 (1927).

68. In an antitrust complaint, filed on May 23, 1945 and amended March 19, 1946, the Government charged that these arrangements formed the basis for a cartel in restraint of domestic and international trade in plate glass, window glass, and other types of sheet glass. This case was settled by a consent decree on Sept. 5, 1946. *United States v. Libbey-Owens-Ford Glass Co.*, CCH Trade Cas., 1946-47, ¶ 57,489 (N.D. Ohio 1946).

69. Most of the data in this section refer to the situation at the end of the 1930's, as presented in the evidence submitted in the Government's antitrust case against Hartford-Empire and affiliated manufacturing companies. See note 55 *supra*. The weakening of patent controls as a result of that case may eventually bring about some changes in the relative position of various members of the industry. However, as of the beginning of 1948 sufficient time had not elapsed for any significant alteration in the general picture to make its appearance. In any event, Corning's quasi-monopoly of electric lamp bulbs and of heat-resistant ware, marketed under the trade name of Pyrex, was not materially disturbed by the *Hartford-Empire* decision.

This combination dominating the glass container field was the result of a series of maneuvers directly or indirectly related to the exploitation of patent privileges.

A SEVEN-POINT MONOPOLY PLAN: HARTFORD-EMPIRE

There were innumerable individual transactions and piecemeal mergers, all of which fitted into the general plan.⁷⁰ But to indicate the main lines of development it will suffice to distinguish seven major steps in its evolution. These were:

- (1) The founding of the Owens Glass Company about 1906 to exploit Owens' basic invention in automatic glass-bottle-blowing machinery
- (2) The negotiation in 1916 of a contract between Hartford and Empire, a Corning subsidiary, for the concerted exploitation of patents relating to an independent development in the automatic glass-bottle-blowing art
- (3) The consolidation of Hartford and Empire in 1922 and the concurrent agreement dividing the field between Hartford and Corning
- (4) The negotiation of an offensive and defensive alliance between Hartford-Empire and Owens in 1924
- (5) The negotiation of tripartite agreement among Hartford-Empire, Owens, and Hazel-Atlas in 1932
- (6) The signing of a contract between the Hartford-Empire—Owens consortium and Ball Brothers in 1933
- (7) The signing of a contract between the Hartford-Empire—Owens consortium and Lynch Machinery Company in 1933

The significant details of these events were as follows:

- (1) The introduction of automatic glass-bottle-blowing machinery revolutionized a trade that had previously consisted of small shops dependent on skilled artisans. As a single Owens machine displaced more than a score of hand "blowers" and "gatherers," a strong centralizing tendency in the organization of the industry was inevitable. But the tendency was strengthened by

70. For example, Owens-Illinois reached its towering position in part as a result of mergers with some 13 other glass-container manufacturers at intervals over a period of 30 years. The largest of these acquisitions was that of the Illinois Glass Company in 1929. One of the principal factors behind all of these mergers was the strong patent position of the Owens company. In some cases the acquisitions clearly reflected Owens' desire to strengthen its patent position, but more frequently the company absorbed probably found its independent position untenable against the steady pressure that Owens could exert through the exploitation of its accumulated patents.

Another development, besides such piecemeal mergers, that helped to cement the glass-container industry into a monolithic structure was the organization of the Glass Container Association. The trial court considered the operations of this trade association so integrally connected with the patent pool that it listed it as one of the eight major steps in the evolution of the monopoly. 46 F. Supp. at 585. Undoubtedly, as the court found, the Association acted in the role of a policeman to enforce the license restrictions that Owens and Hartford-Empire imposed on the rest of the industry. *Id.* at 588. Nevertheless, such activities are not necessarily an adjunct of cross-licensing arrangements. Many trade associations perform comparable functions in respect of stabilization programs that have no connection with a network of patent cross-licenses.

Owens' policy of persistent accumulation of improvement patents and the acquisition of competing plants, some of which had grown to substantial size by the use of semiautomatic machinery. The basic feature of the Owens invention was a suction-feed device that drew the molten glass into the mold, where pneumatic pressure "formed" it to the desired shape. The major difficulty in this process was to overcome the tendency of the molten glass to harden at the point where its flow into the mold was cut off. The original Owens invention left room for many subsequent improvements in this part of the machinery.

(2) A major step forward in the bottle-blowing art came with the invention in 1912 of an automatic machine using the gob-feed process, which differed radically from the Owens process. Instead of drawing molten glass into the mold by suction out of a continuous stream, the new process used pneumatic pressure to propel into the mold a previously separated globule, or gob, of molten glass. Hartford acquired the patent on this process and made it the basis for promotion of a scheme of industrial control that ultimately at least matched that of Owens. Corning also acquired some patents in the gob-feed field, and in 1916 Hartford and Empire reached an agreement for the exchange of rights under their respective patents and the elimination of competition in their exploitation.

(3) After six years of cooperation under this contract Hartford and Corning merged their interests in the bottle-machinery field. They formed the Hartford-Empire Company, in which Corning held 40% of the stock. Hartford-Empire agreed with Corning to stay out of the electric lamp bulb field in return for Corning's promise to stay out of the bottle field. A Hartford official told of the goal sought by the merger and accompanying agreement. He said that "working as one unit properly financed and properly organized, this unit . . . would, within reasonable time, dominate the entire glass industry. . . ." ⁷¹

(4) The 1924 contract between Hartford-Empire and Owens brought under unified control the only commercially workable techniques for the automatic production of glass bottles. Owens gave Hartford-Empire an exclusive license under all of its patents adaptable to gob feeders and forming machines, with rights to sub-license others. Hartford-Empire gave Owens a non-exclusive, unrestricted, royalty-free license under its patents for 40 gob feeder units. This license was the only "unrestricted" license that Hartford-Empire ever granted.⁷² Owens retained exclusive control of suction-type

71. 46 F. Supp. at 553.

72. In fact, the license was not wholly unrestricted because, whether by express provisions of the contract or by mutual understanding, Owens was bound not to use the Hartford-Empire patents in Corning's field of electric lamp bulb manufacture. For a summary of the terms of the agreement, see 46 F. Supp. at 549-50 and 564.

machines.⁷³ Additionally, Owens obtained a 50% share in all royalties above \$600,000 annually collected by Hartford-Empire from its licensees. Finally, Owens obtained veto power over all licenses that Hartford-Empire might negotiate.⁷⁴

Correspondence among the parties reveals the essential character of this contract that on its face was simply a cross-licensing agreement. Soon after the conclusion of the agreement a Hartford-Empire official addressed a letter to an Owens official saying that he hoped they would "soon have an opportunity for putting the cards on the table and properly stacking them for use against our common adversaries."⁷⁵

(5) The Hazel-Atlas Glass Company was the second largest bottle manufacturer in the country. At first it refused to join the Hartford-Empire—Owens patent-pooling scheme. It possessed some patents of its own on feeder devices and had applications on file for important improvements. After long, fruitless negotiations in which Hazel-Atlas showed that it preferred independence to submission, Hartford-Empire eventually brought suit for infringement. Hazel-Atlas was convinced that Hartford-Empire had obtained by fraud the principal patent on which it based the charge of infringement. Hazel-Atlas hired detectives to trace the origin of certain statements submitted to the Patent Office in support of the application for this Hartford-Empire patent, but it could not prove the suspected fraud. Though Hazel-Atlas obtained a judgment in its favor in one Circuit Court of Appeals in 1932, another Circuit Court of Appeals in the same year held one of Hartford's most important patents valid and infringed by Hazel-Atlas.⁷⁶ Rather

73. The agreement did not mention suction feed patents. But the court found that "it was the . . . understanding of the parties that there would be no undue competition between the suction and the gob-feed processes and that Owens intended to guard any invasion of the suction field by anyone, including Hartford." *Id.* at 549. By a supplemental agreement in 1932, Owens obtained an option on all present and future Hartford patents relating to the suction feed process. *Id.* at 570.

74. Owens never had occasion to use its veto power, because Hartford-Empire had the same interest as Owens in rigidly restricting its licensees in order to strengthen the joint patent monopoly. In 1931 at the urgent solicitation of Hartford, Owens agreed to cancel this provision of the 1924 agreement (section 22). Hartford's interest in obtaining an annulment of section 22 was avowedly based on the desire to make the basic 1924 agreement less vulnerable to attack under the antitrust laws.

Cooperation in 1933 between the major partners after Hazel-Atlas joined the consortium shows that the cancellation of section 22 did not alter Hartford-Empire's practice of consulting Owens before issuing licenses and obtaining its approval of the proposed provisions thereof. A Hazel-Atlas official admonished Hartford not to reveal the influence of its *manufacturing* partners (Owens and Hazel-Atlas) on its licensing policy. He said, "It seems to me that when people like the Maywood Glass Company take up with the Hartford-Empire Company about the extension of licenses, that Hartford should certainly not write them and tell them they are referring it to the glass companies for decision; that is what they did in this case. This makes a lot of hard feeling among the competition." 46 F. Supp. at 591.

75. *Id.* at 611. The "common adversaries" were apparently the remaining independents.

76. These decisions were, respectively, *Hartford-Empire Co. v. Nivison-Weiskopf Co.*, 58 F.2d 701 (6th Cir. 1932); and *Hartford-Empire Co. v. Hazel-Atlas Glass Co.*, 59 F.2d 399 (3d Cir. 1932). In the former case, Hazel-Atlas was defending a suit for contributory infringement brought against one of its customers.

than incur continuing heavy expenses of litigation and risk eventual defeat, Hazel-Atlas took advantage of its still favorable position to effect a settlement.

By the terms of the agreement Hazel-Atlas obtained a one-third interest in Hartford-Empire's royalty income above \$850,000 a year. At the same time, Owens agreed to accept a reduction in its share of Hartford's "excess" royalty income from one-half to one-third. Unlike Owens, however, Hazel-Atlas was obliged to grant Hartford licenses, with power to sub-license, under all glass machinery patents it had accumulated or might henceforth acquire. Again unlike Owens, Hazel-Atlas was obliged to pay Hartford royalties on all its feeder machines—even though some of these machines at least were Hazel-Atlas machines constructed before the agreement, independently of Hartford-Empire patents.

Ten years after this settlement, Hazel-Atlas discovered for the first time that its suspicions were well grounded regarding the circumstances under which Hartford-Empire had obtained the principal patent at issue in the infringement suit that led to the 1932 settlement. It therefore brought suit to have vacated the 1932 decree adjudging it an infringer. The Supreme Court upheld Hazel-Atlas's contention and directed the Circuit Court to annul the patent.⁷⁷ Meanwhile the infringement suit had served its purpose. It had brought Hazel-Atlas into the patent fold and had given the tripartite consortium virtually unrivalled mastery of the industry.

(6) In one special part of the field, however, the dominant group still faced the competition of a well-entrenched independent. Ball Brothers was the largest maker of fruit jars, in the manufacture of which they used Owens' suction-type machines under an exclusive license granted nearly a quarter century earlier. Fortified by this contract, Ball at first rejected Hartford-

77. *Hazel-Atlas Glass Co. v. Hartford-Empire Co.*, 322 U.S. 238, 64 Sup. Ct. 997, 88 L. Ed. 1250 (1944). Though the court split 5 to 4 on this decision, the minority, for whom Mr. Justice Jackson wrote a dissenting opinion, did not question the appropriateness of some relief from the 1932 decree in view of the disclosures regarding the disreputable means by which Hartford-Empire had obtained it—and the patent. The minority simply sought to have the case sent back to the district court for a more orderly procedure.

For the majority Mr. Justice Black wrote an opinion vehemently denouncing the tactics Hartford-Empire had employed to subdue the largest independent producer in the industry. The evidence showed that Hartford-Empire had paid a former president of the Glass Workers' Union \$8,000 to sign an article, which officers and attorneys of Hartford-Empire and Owens had prepared, representing that the invention in question was a substantial advancement in the art, and had used this article both in the Patent Office, to support its application for the patent, and in court, to defend the patent's validity.

After summarizing the facts, Mr. Justice Black said, "Every element of the fraud here disclosed demands the exercise of the historic power of equity to set aside fraudulently begotten judgments. . . . This matter does not concern only private parties. . . . It is a wrong against the institutions set up to protect and safeguard the public, institutions in which fraud cannot complacently be tolerated consistently with the good order of society." 322 U.S. at 245, 246.

After this decision disbarment proceedings were instituted against several of the attorneys representing Hartford-Empire in the 1932 infringement suit and these led to an order of disbarment. See Marcus, *Patents, Antitrust Law and Antitrust Judgments Through Hartford-Empire*, 34 Geo. L.J. 1 (1945).

Empire's invitation to give up its suction-machine rights and accept a restricted share of the market under the gob-feed patents umbrella. Ball took the position that it had nothing to gain from a nonexclusive Hartford license as long as Hartford had outstanding four licenses for the manufacture of fruit jars in unlimited quantities.⁷⁸ After some reshuffling of these licenses, including concessions from Owens and Hazel-Atlas to limit their output of fruit jars, Ball eventually accepted a Hartford license. The agreement recognized Ball's paramount position in the fruit jar field, and in return for an agreement to pay Hartford-Empire stipulated royalties practically guaranteed to Ball a major share of the market. Moreover, Ball received assurance that in accordance with Hartford-Empire's traditional policy no new licenses would be issued in this special field.

(7) Finally the Lynch Company, the largest independent manufacturer of glass-making machinery, joined the patent consortium in 1933. By the terms of a cross-licensing agreement, Lynch received the right to make and sell forming machines embodying Hartford patents. But Lynch was required to exact discriminatory terms of buyers other than Hartford licensees. According to the court, "the result of the agreement was that Lynch could sell no narrow neck forming machines except to persons who had first obtained a forming machine license from Hartford."⁷⁹

The Lynch deal closed the last opportunity for independent bottle manufacturers to obtain the more important kinds of glass-making machinery without paying toll to the patent monopolists. One or two concerns still manufactured such minor elements in glass-making equipment as the "lehrs," or ovens, for tempering the ware. In 1934 a Hartford representative approached one such manufacturer, the Amsler-Morton Company of Pittsburgh, with an offer of a merger. Amsler-Morton was to receive a one-third interest in the Hartford Empire lehr business. In view of the volume of business it had developed in this field, Amsler-Morton considered these terms too harsh. But the Hartford representative left no doubt that the patent consortium was in no mood to brook continued competition. "[I]f you do not go on with us, you are going to be sued, and continue to be sued until you are out of business.' He said, 'It is our plan that nobody in the glass industry is going to be allowed to own one piece of equipment.'"⁸⁰

78. Owens, Hazel-Atlas, Knox and General were the four such licensees. The latter two were eventually eliminated as factors in the negotiation. With the help of Owens and Hartford, Ball bought out Knox. In return for \$100,000 cash, General relinquished its unlimited fruit jar license and agreed to stay out of the domestic household trade in this line of products. These transactions were all part of the 1933 deal that brought Ball into a more precisely defined relation to the glass-container pool. See 46 F. Supp. at 582-84.

79. 46 F. Supp. at 550. In the sequence of processes used in making bottles, "forming" is the next step after "feeding," *i.e.*, after placing the "gob" of molten glass in the mold.

80. 46 F. Supp. at 599. In explanation of the reference to the ownership of glass-making equipment, Amsler-Morton sold its lehrs while, as in the case of its other glass-making equipment, Hartford-Empire only leased its lehrs.

Amsler-Morton rejected the Hartford offer and rashly elected to try to continue as an independent manufacturer. Hartford-Empire thereupon threatened to bring suit against Amsler-Morton's customers, thus avoiding the risk of having its patents declared invalid in a suit directly against Amsler-Morton. In one such suit, after the district court had held that the Amsler-Morton *lehr* did not infringe any of Hartford's patents, the Court of Appeals for the Fourth Circuit reversed the judgment.⁸¹ Without adequate funds to continue the fight Amsler-Morton withdrew from the field, its glass-container equipment business ruined.

IMPLICATIONS OF HARTFORD-EMPIRE TACTICS

The ruthless policy that the Hartford-Empire—Owens combination pursued in building up its patent monopoly was not a chance outcome of practical exigencies or of casual consideration. It was part of a deliberate plan to monopolize the entire industry. Evidence of this may be found not only in the combination's persistent efforts to eliminate competition⁸² and in its steady accumulation of hundreds of patents in all branches of the glass-making art, but also in the explicit statement of members of the combination. Thus the secretary-treasurer of Hartford-Empire outlined the company's policy as follows:

"It has always been our ambition to obtain patents which related to furnace, melting and refining, feeding, delivery, forming, automatic handling, carrying, stacking, and annealing. Conceivably we might lose patent domination of one or more important links, but still retain practical control of the whole chain by means of control of the most efficient form of the other links."⁸³

"Consequently we adopted the policy which we have followed ever since of restricted licensing. That is to say,

"(a) We licensed the machines only to selected manufacturers of the better type, refusing many licensees whom we thought would be price-cutters, and

81. *Hartford-Empire Co. v. Swindell Bros.*, 96 F.2d 227 (4th Cir. 1938), reversing 18 F. Supp. 191 (D.C. Md. 1937). Amsler-Morton was required by contract to defend this suit. As the trial court in the antitrust action said, "It was limited in its defense of the suit, because Swindell was under license and lease from Hartford and had agreed not to contest the validity of Hartford's patents." 46 F. Supp. at 551. On this whole episode, see *TNEC Hearings*, pt. 2, pp. 596-602.

82. The instances of absorption or expulsion of competitors mentioned in the text are merely illustrative of a long list of similar maneuvers. To add only one more example, when Hartford discovered in 1925 that a rival, Federal, had developed a feeder machine that was "successful" and "a distinctly different type from those developed by Hartford and Owens," according to the words of a Hartford official, it paid \$1,600,000 to get rid of this competitive threat.

A Hartford memorandum, analyzing the risk of antitrust prosecution on account of this transaction, stated: "Of course, the court might order that we transfer the entire Federal licensing business to some other party and turn over to that party the Federal patents. . . . I do not see much danger of having any of these deals upset. . . . If they are upset, I still believe that by that time we will be in a better position, even with such dissolution than we would be otherwise." Quoted by Mr. Justice Black in his dissenting opinion, *Hartford-Empire Co. v. United States*, 323 U.S. 386, 437, 65 Sup. Ct. 373, 89 L. Ed. 322 (1945), to show that the majority's "watering down" of the district court's decree amounted to a confirmation of the Hartford official's shrewd forecast.

83. 46 F. Supp. at 611.

"(b) We restricted their fields of manufacture, in each case to certain specific articles, with the idea of preventing too much competition.

"(c) In order to retain more complete control of the situation, we retained title to the machines and simply leased them for a definite period of years, usually 8 or 10 years. . . ." ⁸⁴

The record contains further evidence of the resolute determination of the chief architects of this "glass house" to control the entire industry. A 1924 Hartford memorandum referring to the basic agreement between Hartford-Empire and Owens declares that "the commercial considerations involved . . . are of greater importance than the relative patent values controlled by the two companies. By 'commercial considerations' is meant the domination of outside feeders, the stabilization of the industry tending against irresponsible price-cutting." ⁸⁵

When the antitrust suit reached the Supreme Court that tribunal unanimously agreed that the evidence disclosed a clear violation of the law. But the majority regarded as too severe the terms of the district court's decree and refused to uphold the provision requiring compulsory, royalty-free licensing of the formidable array of patents that Hartford-Empire had accumulated in the course of its long climb to ascendancy in the industry.⁸⁶ The Court pointed out that the antitrust laws provided specific penalties for violations thereof and that the specified penalties did not include forfeiture of defendants' assets otherwise than by way of a cash fine. In the opinion of the majority a requirement of royalty-free licensing was tantamount to cancellation of the patents.

In vigorous dissents Mr. Justice Black and Mr. Justice Rutledge denounced the majority's "watering down" of the district court's decree. As Mr. Justice Rutledge declared after reviewing the facts:

"When the patent-holder so far overreaches his privilege as to intrude upon the rights of others and the public protected by the antitrust legislation, and does so in such a way that he cannot further exercise the privilege without also trespassing on the rights thus protected, either his rights or the other person's and the public's rights must give way. It is wholly incongruous in such circumstances to say that the privilege of the trespasser shall be preserved and the rights of all others . . . shall continue to give way . . . this is substantially what the defendants have sought . . . so inverted an idea of equity, or of the law, cannot stand . . . The court's major modifications, in my opinion, emasculate the [district court's] decree." ⁸⁷

PATENTS AND ANTITRUST LAWS: HOW RECONCILE?

As the patent system has actually developed, it has in various ways furnished legal cover for practices that undermine a competitive economic

84. *Id.* at 593.

85. *Id.* at 561.

86. *Hartford-Empire Co. v. United States*, 323 U.S. 386, 65 Sup. Ct. 373, 89 L. Ed. 322 (1945).

87. 323 U.S. at 452-53.

system. Any governmental grant of exclusive patent rights limits, at least in the field the franchise covers, freedom of enterprise and competitive regulation of the market. Yet, on a broad reckoning, such grants need not be incompatible with the rule of competition in the economy as a whole. Public utility franchises probably help conserve competition in the industries that depend on the franchise holders for transportation, power or other services. Similarly, the patent system could be remodelled so that, even under modern conditions, it would provide an adequate stimulus to technological advance while at the same time imposing fewer limitations and less severe handicaps on competitive enterprise than it now does.

In view of the opposition of strong vested interests, such a remodelling will require a determined, coordinated drive by the three major branches of government, backed by an informed public opinion. Despite the impressive line of twelve recent cases in which the Supreme Court has heroically struggled to adapt the patent system to the needs of a competitive industrial order and release technology from oppressive restraints,⁸⁸ correction of patent abuses will be a slow process at best unless Congress lends a hand. Since Congress has sanctioned patent rights, it is for Congress to define the correlative patent obligations—a logical step that legislatures have taken as a matter of course in reference to all other franchise holders. Without such legislative definition, judicial precedents hardened by a century of established usage cannot easily be overthrown.

Even after the *Hartford-Empire*, *United States Gypsum*, and *Line Material* cases, it is still questionable whether a single corporation may not lawfully accumulate a formidable array of patents by buying up every important invention applicable in a particular industry and by means of restrictive licenses control the quantity and quality of output, the geographic and industrial field of sales, and even the prices of most, if not all, producers in that field.⁸⁹ The tendency of the Supreme Court in the past ten years to scrutinize more closely the standards of invention in use by the Patent Office has plainly had a salutary effect in reducing the multiplicity of patents, but it will take a long time to bring administrative practice into conformity with enlightened judicial conceptions of what constitutes genuine invention.

LEGISLATION NEEDED TO PRESERVE COMPETITION

If the goal of public policy is to preserve competition—to make it effective

88. As Judge Learned Hand has suggested: "perhaps the system is outworn." *D. & A. Chemical Co. v. Mimex*, 124 F.2d 986, 990 (2d Cir. 1942).

89. Though the twelve recent cases, *supra* notes 56-65, represent a radical change in patent law, all of them, except those involving restriction on the use of unpatented materials in or with patented devices, turned on the issue of conspiracy. In the two most recent cases decided in March 1948, for example, the decisive factor was the concerted action among a group of competing manufacturers, both licensors and licensees.

—a prompt and thorough legislative reconsideration of the patent problem appears essential. Otherwise relief from patent abuses may be too little and too late. The increasing demand for patent reform in recent years provides a good omen for early action in this direction. The Temporary National Economic Committee placed revision of the patent laws in the forefront of its recommendations, and in response thereto Congress adopted four minor amendments to accelerate Patent Office procedure.⁹⁰ Shortly thereafter, on December 12, 1941, President Roosevelt appointed a National Patent Planning Commission. This Commission could find little to criticize in the American patent system, which it considered "the best in the world."⁹¹ Its only significant recommendations were (1) establishment of a single Court of Patent Appeals and (2) a requirement that patent agreements be filed in the Patent Office.

Congress was not satisfied that these measures touched the heart of the problem. After extensive hearings on technological mobilization before the Senate (Bone) Committee on Patents and the (Kilgore) Subcommittee on War Mobilization of the Senate Military Affairs Committee, Senator Kilgore and others in 1945 and 1946 introduced five bills having as their main object the release of technology from stifling restraints founded on patent abuses.⁹² These bills, together with the proposals put forward by Dr. Vannevar Bush, head of the Office of Scientific Research and Development, in his report to the President in July 1945, *Science: The Endless Frontier*, formed the basis for the projected National Science Foundation.⁹³

The major thrust of the congressional program has been toward subsidizing scientific research with public funds. The sponsors of the program have not squarely faced the issue of the impact of such subsidized research on the patent system. Agitation for direct reform of the patent system has continued, however, and in April 1945 the President appointed an interdepart-

90. 34 U.S.C.A., §§ 52, 57, 59a and 63 (1940). See TNEC, "Final Report and Recommendations," SEN. DOC. No. 35, 77th Cong., 1st Sess., 36-37 (1941).

91. Report of the National Planning Commission, "The American Patent System," H. R. DOC. No. 239, 78th Cong., 1st Sess. 1 (1943).

92. See "Scientific Research," SEN. DOC. No. 92, 79th Cong., 1st Sess. (1945); SEN. REP. No. 1136, pt. 2, 79th Cong., 2d Sess. (1946); and "Science Legislation," Appendix to Report of the Subcommittee on War Mobilization to the (Sen.) Committee on Military Affairs, Subcommittee Monograph No. 5, 79th Cong., 1st Sess. (1945).

93. See "National Science Foundation," Report to Accompany S. 526, SEN. REP. No. 78, 80th Cong., 1st Sess. (1947). Though Congress passed the National Science Foundation Act, the President vetoed it in September 1947. In preparation for the contemplated establishment of the Foundation, whenever the Executive and the Congress can agree on a suitable administrative plan, the President appointed a Science Research Board in 1947. Its report, *Science and Public Policy*, in 5 volumes, was published in 1947. About the same time, on request of the President, the Attorney General undertook an investigation of *Government Patent Practices and Policies*. See Report and Recommendations of the Attorney General to the President (under above title), 3 volumes, Washington, 1947. This report was confined, except for certain monographic studies in Volume 3, to policies and procedures of various governmental agencies in relation to patents.

mental Patent Survey Committee.⁹⁴ If this committee can avoid falling into the rut that made the work of the National Patent Planning Commission an exercise in futility, it has a rare opportunity to prepare the way for a remodelling of the patent system that will bring it into greater harmony with the objectives of antitrust policy.

SUGGESTIONS FOR REVISION OF PATENT LAWS

It is beyond the scope of this chapter to explore possible ways to reconstruct the whole framework of the American patent system in order to make it a more efficient instrument for achieving the constitutional objective of promoting "the Progress of . . . useful Arts." But it will be useful to canvass briefly less drastic remedies for making the patent system less of a hindrance to the competitive process of industrial regulation. A convenient procedure will be to follow the outline of patent abuses already considered.

To abate patent multiplicity two measures immediately suggest themselves. The first is to raise the standard of patentable invention. Recent Supreme Court cases indicate clearly how Congress could make a beginning in this needed reform.⁹⁵ The Court has increasingly emphasized that to be patentable an invention must be not only "new and useful" but must exhibit a degree of novelty that rises higher than merely skillful adaptation, and a degree of utility that amounts to more than commercial profitability. Were Congress to lay down the rule that a patentable invention must represent a genuine technological advance, it would materially help the Supreme Court in its efforts to raise the standard of inventions.⁹⁶

A second way to abate the evils of patent multiplicity would be to eliminate food and medicine from patentable subject matter. In the interest of public health and nutrition it is anomalous still to permit private corporations to monopolize such products. Patent medicines are an anachronism, peculiar to the United States. In England, as already noted, the public is not dependent on the chance error of a patentee in overstating his claims to achieve freedom of access to health-building vitamins.⁹⁷ Monopoly profits are surely an un-

94. See the chairman's statement of the problem, Davis, *Proposed Modifications in the Patent System*, 12 LAW & CONTEMP. PROB. 796 (1947).

95. See, for example, the opinion of Mr. Justice Douglas in *Cuno Engineering Co. v. Automatic Devices Corp.*, 314 U.S. 84, 90-92, 62 Sup. Ct. 37, 86 L. Ed. 58 (1941); the opinion of Mr. Justice Murphy in *Dow Chemical Co. v. Halliburton*, 324 U.S. 320, 328-29, 65 Sup. Ct. 647, 89 L. Ed. 973 (1945); the opinion of Mr. Justice Jackson in *Sinclair & Carrol Co. v. Interchemical Corp.*, 325 U.S. 327, 335, 65 Sup. Ct. 1143, 89 L. Ed. 1644 (1945); and the opinion of Mr. Justice Douglas in *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 68 Sup. Ct. 440, 92 L. Ed. 588 (1948).

96. See Stedman, *Invention and Public Policy*, 12 LAW & CONTEMP. PROB. 664-67 (1947).

97. Referring to *Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation*, 146 F.2d 941 (9th Cir. 1945), *cert. denied*, 325 U.S. 876 (1945). See in this connection, Federal Trade Commission Order No. 5070, entered March 30, 1948, against American Dietaids Company directing the respondent to cease and desist from false and misleading advertising of its patent medicine, "Enrich," a vitamin preparation.

necessary incentive for the experimental research leading to genuine advances in medical science. To permit commercial groups to derive monopoly profits from such research appears contrary to the public interest.

PROCEDURAL REFORMS

Of the many procedural reforms that would improve the patent system, three are noteworthy. The first is to make applications a matter of public record and to forbid reissues. The second is to provide for the intervention of a disinterested public agency or official in interference proceedings. If this can be accomplished only by transferring interference proceedings to the courts, perhaps to a special patent court, Congress might well consider doing so.

The record reviewed in this article plainly shows that in one way or another the public interest must have a defender in the settlement of a contest over priority of invention between two private parties if the channels of trade are not to be cluttered with a large number of invalid patents. The opportunity for fraud and the invitation to collusion under the existing procedure encourage the parties to sink their differences and share the spoils.

Finally, Congress might well consider the advantages of a measure for promptly establishing the validity of patents by judicial process at public expense. No good reason has been advanced for throwing upon independent competitors the burden of determining whether the Patent Office has improvidently taken out of the public domain some technique that rightfully belongs there and given the exclusive right to use it to a private monopolist.⁹⁸ One way to accomplish this end would be to empower the Department of Justice, either on its own initiative or at the request of an inventor or of any enterprise threatened by an infringement suit, to institute actions in the courts to test the validity of patents.

To meet patent-licensing abuses Congress could make a significant beginning, at least, by heeding the dissenting opinions in recent Supreme Court cases. It is not apparent that any advantages attend awaiting some possible change in the personnel of the Bench or in the opinion of one or two of its present members to clear up the present muddled situation about the extent of a patentee's licensing power. It is the responsibility of Congress, as the supreme lawmaking body, definitely to settle such an issue, for example, as that of whether a patentee is entitled, entirely apart from questions of collusion or conspiracy, to restrict by license agreement the output and prices, or the market territories, of his licensees.

Beyond this, Congress might well consider the relief of competitive industry from oppressive licensing policies by providing for compulsory

98. Consult in this connection the penetrating and perspicacious article by Woodward, *A Reconsideration of the Patent System as a Problem of Administrative Law*, 55 HARV. L. REV. 950, 977 (1942).

licensing on payment of reasonable royalties. One of the objections most frequently raised in opposition to this proposal is the difficulty of determining a reasonable royalty. But this objection will not withstand critical analysis.⁹⁹ The courts have had no particular difficulty in solving essentially the same problem in cases involving the assessment of damages for patent infringement. That the damages judicially assessed in such cases have generally been reasonable would seem a fair inference from the absence of any suggestion, much less any agitation, for modifying established standards and procedures for recoupment of damages from infringement. In such cases, once the fact of infringement is established, the aim is to redress the injury, or as the saying goes, "make whole" the patentee. The proper measure of damages, therefore, is the market value of the privilege of using the patent for the period of the infringement. And this is equivalent to a fair royalty.

Whether or not such a measure were made applicable to all patents, Congress could at least give statutory sanction for compulsory licensing of patents that (1) have been used to accomplish a violation of the antitrust acts, (2) have been suppressed and (3) are subject to discriminatory licensing by patent holders other than the inventor.

Perhaps the statute should specify a fourth situation in which compulsory licensing would be in order, namely, when a patent holder other than the inventor exploits the patent but does not license it. The object of such a provision would be to limit the privileges of corporations that accumulate a great number of patents as a barricade against competition.¹⁰⁰ At the same time, it would reserve for inventors, if they choose to exploit their inventions, the "exclusive right" to do so.

The foregoing measures might not be wholly effective in restoring the patent system to its constitutional function. But they should help materially to stop its use in circumventing the antitrust laws. They would provide constructive steps toward reform long overdue. A patent system thus revised would *complement*, instead of obstructing and hampering, a public economic policy designed to foster free enterprise and preserve effective competition.

99. See, Borkin, *Patent Abuses, Compulsion to License and Recent Decisions*, 43 COL. L. REV. 720 (1943); and Feuer, *The Patent Privilege and the TNEC Proposals*, 14 TEMP. L.Q. 180, 192-93 (1940).

100. Only a natural person can "invent" anything. Corporations are ineligible, now, to apply for patents. They can acquire patents only by assignment.