Reduction to Practice, Experimental Use, and the "On Sale" and "Public Use" Bars to Patentability

William C. Rooklidge

W. Gerard von Hoffmann III

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Professor William Robinson introduced his 1890 treatise on patent law with the observation that:

[A] period had at last been reached when the Law of Patents could be successfully treated as a department of jurisprudence whose doctrines were derived by logical processes from established principles, and not as a mere body of legislative enactments verbally interpreted by the decisions of the courts . . . .

[W]henever questions of Patent Law are now presented to our courts the factors of the problem lie before them, certain and intelligible, requiring only careful distinctions and accurate reasoning to attain impregnable results.¹

If patent law had indeed achieved jurisprudential stability in 1890, it strayed far from such stability over the next ninety years. Con-

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* B.S., University of Portland; J.D., Northwestern School of Law of Lewis & Clark College; LL.M., National Law Center of George Washington University. William C. Rooklidge is associated with the law firm of Knobbe, Martens, Olson & Bear, Newport Beach, California.

** A.B., Occidental College; J.D., University of San Diego. W. Gerard von Hoffmann, III is a partner in the law firm of Knobbe, Martens, Olson & Bear, Newport Beach, California, and an Adjunct Professor of Law at Loyola University Law School.

¹ W. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS v (1890).
gress acted to return the stability in 1982 by enacting the Federal Courts Improvement Act, which created the United States Court of Appeals for the Federal Circuit and, effective October 1, 1982, transferred to that court the jurisdiction of the regional circuit courts of appeals over appeals from district court cases "arising under" the patent laws.

One of the goals of Congress in giving the Federal Circuit jurisdiction over patent cases was to impart uniformity and certainty in the jurisprudence of patent law. Six years later, intercircuit conflicts having been eliminated, the prevailing view is that the Federal Circuit has been generally successful in achieving reasonable uniformity and certainty within its own precedents. One area where that belief is not so widely held, however, is in cases dealing with the "public use" and "on sale" bars.

The United States Constitution grants to Congress the power "to promote the Progress of ... useful Arts, by securing for limited Times to ... [in]ventors the exclusive [r]ight to their ... Discoveries." Congress exercised that power by establishing our patent system. Through that system the Patent and Trademark Office grants to an inventor an exclusive right in his invention in exchange for an enabling public disclosure of the invention. The inventor, however, must comply with the conditions prescribed by Congress in order to obtain a valid patent. One of these conditions


5 See, e.g., AIPLA FEDERAL PRACTICE AND PROCEDURE COMM., FEDERAL CIRCUIT PATENT LAW DECISIONS 254 (1986).

6 U.S. CONST. art. I, § 8, cl. 8.

7 As a general rule, the patent laws are codified under title 35 of the United States Code. For jurisdictional purposes, however, the Federal Circuit has interpreted the patent laws more broadly. See, e.g., Alco Standard Corp. v. Tennessee Valley Auth., 808 F.2d 1490, 1494-95 (Fed. Cir. 1986) (holding that 16 U.S.C. § 831(r) is an "Act of Congress relating to patents"), cert. dismissed, 108 S. Ct. 26 (1987).


9 See Consolidated Fruit-Jar Co. v. Wright, 94 U.S. 92, 96-97 (1876); Shaw v. Cooper, 32 U.S. (7 Pet.) 292, 320 (1839).
is that the invention cannot have been placed "in public use or on
sale in this country, more than one year prior to the date of the
application for patent in the United States." This provision, sec-
tion 102(b) of title 35 of the United States Code, contains two sepa-
rate but interrelated conditions, known as the "public use" and
"on sale" bars to patentability.

Pre-1982 conventional wisdom was that application of the
"public use" and "on sale" bars required that the invention reach a
particular stage of development, known as reduction to practice, at
the time of the activity in order for that activity to raise either bar.
The same conventional wisdom was that there was an "experimen-
tal use" exception to the "public use" and "on sale" bars. As an
exception, experimental use was activity that would otherwise be a
bar but for the intent of the inventor. Experimental use, therefore,
involved inventions that had reached the stage of development
necessary to implicate the bar, namely reduction to practice.

The Federal Circuit has, at least in part, rejected that under-
standing of the "public use" and "on sale" bars. In TP Laborato-
ries, Inc. v. Professional Positioners, Inc., the court reasoned
that rather than being an exception, experimental use negates the
"public use" and "on sale" bars. Similarly, in UMC Electronics Co.
v. United States, the court rejected the proposition that applica-
tion of the "on sale" bar required that the invention be reduced to
practice. In both TP Laboratories and UMC Electronics, the court
looked to early Supreme Court cases and policy considerations un-
derlying the bars.

After reviewing these early cases and policies, as well as the
cases of the regional circuits and the Federal Circuit, this Article
will conclude that the Federal Circuit has rejected the regional cir-
cuits' entire understanding of the "public use" and "on sale" bars
as related to experimental use and reduction to practice.

Part I of this Article will recount the brief legislative history of
the bars, pointing out that Congress offered no guidance on the
issues of experimental use and reduction to practice as applied to
the "on sale" and "public use" bars. Consequently, this area of the
law is entirely judge-made.

Part II will discuss the relationship between reduction to prac-

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12 816 F.2d 647, 2 U.S.P.Q.2d (BNA) 1465 (Fed. Cir. 1987), cert. denied, 108 S. Ct. 748
(1988).
tice and two older terms of art in patent law necessary to understand the Supreme Court cases on the subject: "completion" and "perfection." These terms were used by the Supreme Court in its nineteenth century opinions analyzing the "on sale" and "public use" bars. Analysis of early cases and commentators will show that "completion" and "perfection" are synonyms for a state of development of an invention that is marked by the event of reduction to practice.

Part III of this Article will review the Supreme Court precedents and conclude that the Court assumed that application of the bars did not require a completed invention, that completion of an invention ended experimental use, and that experimental use was not an exception to the operation of the bars, but was a separate stage of development which was necessarily ended by a completion of the invention. Because the Court used "completion" to mean reduction to practice, Part III will conclude that the Supreme Court assumed that operation of the bars did not require reduction to practice, and that reduction to practice ended experimental use. Experimental use of the kind that would negate the bars, in the eyes of the Supreme Court, was use for the purpose of reducing the invention to practice.

This Article will then, in Part IV, recount how the regional circuit courts of appeals and the district courts required a reduction to practice before conduct would give rise to a section 102(b) bar, but will point out that these courts adhered to that requirement in name only. Part IV will also trace the development of a split of authority among the lower courts and the commentators on whether reduction to practice ends experimental use.

Part V will reveal that the same kind of disagreement found in the regional circuits is reflected in the opinions of the Federal Circuit. Part V will review Federal Circuit cases holding that reduction to practice is not required for application of the bars, and cases implying that it is, as well as cases stating that experimental use can and cannot extend beyond reduction to practice. Notwithstanding these differing pronouncements by the Federal Circuit, the analytical approach consistently used by that court has been to resort to the policies underlying the pertinent statutory bar.

Utilizing the Federal Circuit's approach, this Article will in Part VI analyze the policies underlying the "on sale" and "public use" bars. Part VI will conclude that those policies render each proposition of the Supreme Court's analytical framework a truism:
application of neither bar requires reduction to practice, reduction to practice ends experimental use, and experimental use is confined to activities for the purpose of reducing the invention to practice.

From the policies underlying the "on sale" and "public use" bars, Part VII will propose a simple test for each bar, a test incorporating these policies and the analytical framework of the Supreme Court's early cases.

I. LEGISLATIVE HISTORY

In the first United States Patent Statute, Congress authorized the grant of a patent to anyone who invented something "not before known or used." In the 1836 Patent Act, Congress enacted an "on sale" and "public use" bar provision. The bars were not qualified by any grace period—the inventor had to file his patent application before placing the invention "on sale" or in "public use." Three years later, Congress added a two-year grace period to the bar, granting inventors two years in which to apply for a patent after placing the invention "on sale" or in "public use."

The "on sale" and "public use" provision of the statute remained substantially the same for one hundred years, until 1939, when Congress reduced the two-year grace period to one year.

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[A]ny person or persons having discovered or invented any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter, not known or used by others before his or their discovery or invention thereof, and not, at the time of his application for a patent, in public use or on sale, with his consent or allowance, as the inventor or discoverer; and shall desire to obtain an exclusive property therein, may make application in writing to the Commissioner of Patents, expressing such desire, and the Commissioner, on due proceedings had, may grant a patent therefor.

Id.

[N]o patent shall be held to be invalid by reason of such purchase, sale, or use prior to the application for a patent as aforesaid, except on proof ... that such purchase, sale, or prior use has been for more than two years prior to such application for a patent.

Id.

16 See Act of Aug. 5, 1939, ch. 450, § 1, 53 Stat. 1212, 1212. Such Act provided in pertinent part:
That sections 4886 ... of the Revised Statutes ... be amended by striking out the
The 1939 provision was carried over virtually unchanged into the 1952 recodification of the patent laws as section 102(b).

The only congressional comment on experimental use came well after the doctrine had been established by the courts. In the reports accompanying the 1939 Patent Act, Congress observed that "[t]he law thus permits an inventor, after his invention is fully completed, to make the invention known to the public for a period of two years before filing his application for patent." This view may have stemmed from Andrews v. Hovey, where the Court observed that the object of the bars "was to require the inventor to see to it that he filed his application within two years from the completion of his invention." Nevertheless, this single comment, reflecting only an opinion on what the law was in 1939, provides no insight into legislative intent in enacting the "on sale" and "public use" bars over one-hundred years earlier.

words "two years" wherever they appear in said sections and substituting therefor the words "one year."

Id.
The statute had been revised in the Patent Act of 1870, ch. 230, § 24, 16 Stat. 198, 201, to read as follows:

That any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented, or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the duty required by law, and other due proceedings had, obtain a patent therefor.

Id.
This section was codified as Revised Statute § 4886 in 1874. Then in 1897, Congress amended the section to read as follows:

Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor.


17 S. REP. No. 876, 76th Cong., 1st Sess. 1 (1939); H.R. REP. No. 961, 76th Cong., 1st Sess. 1 (1939). At that time, the statutory grace period was two years. Congress reduced that period to one year in 1939. Act of Aug. 5, 1939, ch. 450, § 1, 53 Stat. 1212, 1212.

18 123 U.S. 267 (1887).

19 Id. at 274.
II. TERMINOLOGY

Congress has never defined what constitutes placing an invention "on sale" or in "public use." Consequently, the courts have struggled in applying the bars to commercial and public activities for "experimental" purposes. Because of the lack of congressional guidance, the courts in the nineteenth century fashioned their own analytical framework to decide whether particular experimental activities were subject to the bars. Important in these cases were the patent law concepts of perfection, completion, and reduction to practice. To understand experimental use and its relation to the "on sale" and "public use" bars, one must first turn to these concepts and the case law considering them.

The process of invention is not subject to precise definition. Each inventor goes about the process in a unique manner. There are, however, certain events which the courts have identified as milestones in the inventive process.

The inventive process, however parsed, begins with conception. Conception is "the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice." Conception is the mental part of the inventive process.

The physical part of invention is reduction to practice. Actual reduction to practice is a legal conclusion which can be

20 Nevertheless, authors have spent many pages trying to characterize invention. See, e.g., J. HAYES, INVENTION (1942). No longer is this a fruitful endeavor, however, since the 1952 Act extinguished the once-favored requirement of "invention." See, e.g., Rich, Laying the Ghost of the Invention Requirement, 1 APLA Q.J. 26 (1972), reprinted in BUREAU OF NAT'L AFF., NONOBVIOUSNESS—THE ULTIMATE CONDITION OF PATENTABILITY 1:501 (J. WITHERSPOON ed. 1978) (invention is replaced by nonobviousness).

21 For an engaging personal account of the inventive process at its most unique, see N. TESLA, MY INVENTIONS (1919).

22 A major difficulty in considering events in the inventive process is that no one knows what the invention is—in a legal sense—until the claims of the patent directed to that invention are written by the patent attorney and allowed by the Patent and Trademark Office. Issuance of a patent can occur years, even decades, after the inventive process is complete. See, e.g., Gould v. Quigg, 822 F.2d 1074, 3 U.S.P.Q.2d (BNA) 1302 (Fed. Cir. 1987) (relating continuing efforts of Gordon Gould, who invented laser in 1950's, to obtain patents for his invention).


24 See 1 C. RIVISE & A. CAESAR, supra note 23, § 131; 1 W. ROBINSON, supra note 1, § 77.

25 There are two ways in which an invention may be reduced to practice. One is to file a complete patent application disclosing the subject matter of the invention. This is known as
considered to have four requirements:

(1) The invention must have been embodied in a physical or tangible form;
(2) the physical embodiment relied on as a reduction must show every feature of the invention as defined in the claim or count in interference;
(3) the reduction to practice must demonstrate the practicability or utility of the invention to those of ordinary skill in the art; and
(4) the reduction to practice must have been appreciated by the inventor at the time it was made.\(^\text{27}\)

The first and second requirements of a reduction to practice—a physical embodiment having each feature of the invention—are collectively referred to as the physical embodiment requirement.\(^\text{2}\) The third and fourth requirements are often "constructive reduction to practice." The focus of this Article is on the second way—actual reduction to practice.

The Federal Circuit has emphasized that there is only one definition of actual reduction to practice. UMC Elecs. Co. v. United States, 816 F.2d 647, 655, 2 U.S.P.Q.2d (BNA) 1465, 1470 (Fed. Cir. 1987), cert. denied, 108 S. Ct. 748 (1988); Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd., 731 F.2d 831, 838 n.6, 221 U.S.P.Q. (BNA) 561, 567 n.6 (Fed. Cir. 1984). That court does, however, have a different formulation of reduction to practice in government contract inventor rights clause cases: "Reduction to practice occurs when it is established that the invention will perform its intended function beyond a probability of failure." Hazeltine Corp. v. United States, 820 F.2d 1190, 1196, 2 U.S.P.Q.2d (BNA) 1744, 1749 (Fed. Cir. 1987) (quoting McDonnell Douglas Corp. v. United States, 670 F.2d 156, 161, 214 U.S.P.Q. (BNA) 887, 880 (1982)). The "beyond a probability of failure" formulation was articulated by the Court of Customs and Patent Appeals in an interference case. Taylor v. Swingle, 136 F.2d 914, 917, 58 U.S.P.Q. (BNA) 468, 471 (C.C.P.A. 1943). The apparent difference between the standards is merely semantic.\(^\text{28}\)

See Barmag, 731 F.2d at 837, 221 U.S.P.Q. (BNA) at 566.

1 C. Rivise & A. Caesar, supra note 23, § 132. Rivise and Caesar assert that there are seven requirements. Of these seven “requirements,” only the third through sixth, those set forth in the text above, relate to the event of reduction to practice. The first requirement, that the reduction must have taken place in the United States, stems from 35 U.S.C. § 104 (1982), which precludes an applicant for patent or a patentee from relying on acts abroad to establish a date of invention. A reduction to practice may occur abroad, but that reduction to practice cannot be relied on to establish an invention date. The second requirement, that the reduction must have been made by the inventor or by one authorized to do so either by the inventor or by the inventor’s assignee, goes to whether the applicant or patentee can use the reduction to practice as evidence of his invention date, or whether that event inures to the benefit of someone else. The seventh requirement, that the reduction to practice be sufficiently corroborated in point of time, is evidentiary, stemming from the burden of proof placed on one seeking to prove a date of invention earlier than the filing date.\(^\text{28}\)

Accord UMC Elecs., 816 F.2d at 651-52, 2 U.S.P.Q.2d (BNA) at 1469; Correge v. Murphy, 705 F.2d 1326, 1329, 217 U.S.P.Q. (BNA) 753, 755-56 (Fed. Cir. 1983); Farrand Optical Co. v. United States, 325 F.2d 328, 334, 139 U.S.P.Q. (BNA) 249, 254 (2d Cir. 1963);
expressed by saying that an invention must be tested sufficiently to demonstrate that it will work for its intended purpose.\textsuperscript{29} The construction of this statement in the passive voice masks its two-part nature: a subjective aspect directed to the inventor and an objective aspect directed to a person of ordinary skill in the art.\textsuperscript{30} Courts seldom find it necessary to analyze separately these latter two requirements, as the subjective and objective appreciation of a reduction to practice frequently coincide.

Because reduction to practice requires construction of a physical embodiment, the inventive process may be parsed as follows: conception, construction of a physical embodiment, and actual reduction to practice.\textsuperscript{31} The inventive process ends at reduction to practice, the invention being "complete" and "perfected."

Completion of an invention, as used in patent law, describes that point in the development of an invention at which reduction to practice is achieved. The corollary proposition, that completion of an invention requires its reduction to practice, has been well settled since the Supreme Court's nineteenth century "on sale" and "public use" bar cases.\textsuperscript{32} Thus, by 1890, Professor Robinson


\textsuperscript{30} In order to establish actual reduction to practice, it must be shown that the inventor appreciated or recognized the invention. See 3 D. CHISUM, PATENTS § 10.06[4] (1986); 1 C. RIVISE & A. CAESAR, supra note 23, § 150; see also In re Farrenkopf, 713 F.2d 714, 720, 219 U.S.P.Q. (BNA) 1, 6 (Fed. Cir. 1983) (dicta); Heard v. Burton, 333 F.2d 239, 243-44, 142 U.S.P.Q. (BNA) 97, 100 (C.C.P.A. 1964) ("recognition and appreciation" were lacking). Simply stated: "There cannot be a reduction to practice unless the inventor knows what he is doing." Electro Metallurgical Co. v. Krupp Nirosta Co., 33 F. Supp. 324, 328, 45 U.S.P.Q. (BNA) 541, 546 (D. Del. 1940), aff'd, 122 F.2d 314, 50 U.S.P.Q. (BNA) 158 (3d Cir. 1941), cert. denied, 314 U.S. 699 (1942). Likewise, there can be no conception unless it was appreciated by the inventor at the time it occurred. See 3 D. CHISUM, supra, § 10.04[6]; 1 C. RIVISE & A. CAESAR, supra note 23, § 117.

\textsuperscript{31} This three-step model can be used for heuristic purposes only. Invention can proceed straight from conception to the filing of a patent application—a constructive reduction to practice. An example of the latter process is where the inventor constructs no physical embodiment, or constructs one that does not meet all the limitations of the patent claims.

\textsuperscript{32} See In re DeBaun, 687 F.2d 459, 463, 214 U.S.P.Q. (BNA) 933, 936 (C.C.P.A. 1982) ("the law is well settled that a completed invention requires both conception and reduction to practice"); Bogoslavsky v. Huse, 142 F.2d 75, 77, 61 U.S.P.Q. (BNA) 349, 351 (C.C.P.A. 1944) ("[i]f the eyes of the law the invention is not completed until it has been reduced to practice"); Hann v. Venetian Blind Corp., 111 F.2d 455, 458, 45 U.S.P.Q. (BNA) 292, 296 (9th Cir. 1940); see also Note, New Guidelines for Applying the On Sale Bar to Patentability, 24 STAN. L. REV. 730, 743 (1972) ("[a]n invention is completed when it is reduced to practice because it then becomes useful").
observed that reduction to practice is "necessary to complete the inventive act," and fixes the date of invention. The "Perfection" of an invention, as the term is used in patent law, also describes the state of development of an invention marked by the event of reduction to practice. That the Court understood these terms to be synonyms for an invention reduced to practice is evidenced by arguments presented to it and the authorities on which it relied in its early cases. These cases synonymously used "perfection" and "completion" as the antithesis of experimentation, and used reduction to practice as the event that distinguished between experimentation and the perfected or completed invention. This revelation is seemingly of minor practical value be-

35 See Consolidated Vultee Aircraft Corp. v. Maurice A. Garbell, Inc., 204 F.2d 946, 949, 98 U.S.P.Q. (BNA) 4, 6 (9th Cir.), cert. denied, 346 U.S. 873 (1953) ("An invention is not made, developed or perfected until reduced to practice."); see also Automatic Weighing Mach. Co. v. Pneumatic Scale Corp., 166 F. 288, 298-301 (1st Cir. 1909) (conception evidenced by disclosure, drawings, or model confers no rights upon inventor unless followed by perfection, or invention, either by actual reduction to practice or by filing patent application); 1 E. LIPSOMBS, WALKER ON PATENTS § 3.11, at 215 (3d ed. 1984) (perfection is "converting the mental idea to reality"); Schneider, The On Sale Statutory Bar, 56 J. PAT. OFF. Soc'y 619, 621 (1974) (invention is perfected when useful and serviceable).

36 See Pennock v. Dialogue, 27 U.S. (2 Pet.) 1, 9 (1829) (arguments that sales of an invention were made, "not to experiment with, in order to bring the invention to perfection; but for public use, as a thing already completed").

37 The Supreme Court in City of Elizabeth v. American Nicholson Pavement Co., 97 U.S. 126 (1877), relied on Curtis' treatise on patent law. See G. CURTIS, LAW OF PATENTS 518 (4th ed. 1873). According to Curtis, perfection and completion are synonyms for a state of development of an invention marking the end of experimentation. Curtis based his view upon the circuit court case of Coffin v. Ogden, 5 F. Cas. 1195 (C.C.S.D.N.Y. 1869) (No. 2,950), aff'd, 85 U.S. (18 Wall.) 120 (1874), in which the court treated completion and perfection as synonymous, both being the antithesis of experimentation. The Coffin court additionally treated reduction to practice as the dividing line between experimentation on the one hand and a completed and perfected invention on the other. See id. at 1199.

Although Professor Robinson did not use the "perfection" terminology extensively, he did distinguish perfection of an invention from "mechanical perfection," and noted that reduction to practice resulted in a perfected invention, but did not require "mechanical perfection," i.e., a perfect embodiment of the invention. 1 W. ROBINSON, supra note 1, § 129; see Schneider, supra note 35, at 621. Compare The Telephone Cases, 126 U.S. 1, 536 (1888) ("The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection.") with Seymour v. Osborne, 78 U.S. (11 Wall.) 516, 552 (1871) ("it is well settled that until the invention is so perfected and adapted to use it is not patentable under the patent laws").

cause the term "completion" has largely fallen from use, reappearing only in a few modern cases. But the term "perfection" has taken on a "new" meaning in patent law, one distinct from reduction to practice. The revelation that the Court used "completion" and "perfection" to denote an invention reduced to practice is of significant analytical value to the extent that it permits synthesis of the early Supreme Court cases that initiated jurisprudential development of the now section 102(b) bars.

III. THE EARLY SUPREME COURT CASES

Prior to the turn of this century, the Supreme Court devoted substantial scholarship to developing "on sale" and "public use" jurisprudence. Analysis of these early cases reveals three unifying principles which, although frequently overlooked by the lower courts in the years to follow, remain the basis of a valuable framework for analyzing the "on sale" and "public use" bars.

A. Reduction to Practice Ends Experimental Use

The seminal experimental use case, and the logical starting point for any discussion of the subject, is City of Elizabeth v. American Nicholson Pavement Co. In that case, the inventor, Nicholson, conceived a system for paving streets using wooden blocks on a foundation of tarred paper. In order to test his concept, he constructed a small patch of his pavement on a public road near Boston. He tested the pavement—that is, he observed the condition of the pavement resulting from the travel of heavily-loaded wagons—for six years before applying for a patent on his invention. He examined the condition of the pavement almost daily and inquired as to the public opinion regarding its operation.

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40 The term is often bandied about in interference cases in which one party is alleged to have abandoned, suppressed, or concealed the invention before the other's reduction to practice. See, e.g., Horwath v. Lee, 564 F.2d 948, 952, 195 U.S.P.Q. (BNA) 701, 705 (C.C.P.A. 1977) ("The law does not punish an inventor for attempting to perfect his process [after reduction to practice] before he gives it to the public." (quoting Frey v. Wagner, 87 F.2d 212, 215, 32 U.S.P.Q. (BNA) 239, 242 (C.C.P.A. 1937))).

41 The statute contains nothing relating to experimental use and the legislative history is unhelpful except in identifying the policies underlying the statute, which are discussed infra at Part VI.

42 97 U.S. 126 (1877).
In a suit for patent infringement, the accused infringer challenged the validity of the patent on the ground that Nicholson’s experiments constituted a barring public use. The Court commenced its analysis with the following observation:

The use of an invention by the inventor himself, or of any other person under his direction, by way of experiment, and in order to bring the invention to perfection, has never been regarded as such a use.43

Implicit in this statement of the rule is a two-part test for experimental use: first, the activity must be experimental in nature; and, second, it must be undertaken to bring the invention to perfection.

After recounting the inventor’s diligent observation of the condition of his pavement and his lack of pecuniary gain from the use of his pavement, the Court observed that the policy favoring the inventor’s prompt filing of a patent application is not implicated “when the delay [in filing] is occasioned by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended.”44 The disjunctive construction of this statement is inherently ambiguous. The Court may have meant that in order for an activity to be considered experimental its purpose must be either perfection of the invention or determining whether the invention will answer the purpose intended. More likely, however, given the context, the Court simply used the disjunctive to display the two concepts, perfection of the invention and determining whether it will answer the purpose intended, synonymously.

The necessary implication of the foregoing passages from City of Elizabeth is that the period of experimental use of the kind that negates the bar ends upon “perfection” of the invention, and “perfection” appears to have been equated with the appreciation that the invention will answer the purpose intended. Under that interpretation of City of Elizabeth, two requirements exist for an experimental use to be of the type that will negate the “on sale” or “public use” bars: first, the invention cannot have previously been “perfected”; and, second, the activity must have been for the purpose of experimentation, that is, bringing the invention to perfection.45

43 Id. at 134.
44 Id. at 137.
45 Accord Root v. Third Ave. R.R., 146 U.S. 210, 222, 224-25 (1892); Koehring Co. v.
The next Supreme Court "public use" case was *Egbert v. Lippmann*.\(^4\) That case involved an inventor's loss of a right to a patent on his corset springs by virtue of his allowing a friend, later his wife, to use the springs in her corset for eleven years before applying for a patent. En route to its conclusion that a "public use" bar was created by the activities of the inventor, the Court reasoned:

[The corset springs] were not presented for the purpose of experiment, nor to test their qualities. . . . The invention was at the time *complete*, and there is no evidence that it was afterwards changed or improved. . . .

. . . [T]he invention was completed and put to use in 1855.

The inventor slept on his rights for eleven years.\(^4\)

In rejecting the experimental use defense, the Court relied on two grounds: the invention was complete, and the activities were not for the purpose of experiment or to test the invention's qualities. Thus, the Court adhered to the same substantive test as it applied in *City of Elizabeth*, but replaced "perfected" with "complete."

The Court next applied the bar in *Hall v. Macneale*.\(^5\) In that case, the Court refused to excuse activity as experimental, on the same two grounds as it did in *Egbert*. The *Hall* Court focused on whether the invention was "complete" and whether the activities were "experimental." Within that framework, the Court held that use of the patented mechanism in the interior of a safe, although hidden from view, was a "public use."\(^4\)

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\(^4\) 104 U.S. 333 (1881).

\(^5\) Id. at 337 (emphasis added).

\(^6\) 107 U.S. 90 (1882). The case was cited for this proposition in *Root*, 146 U.S. at 227.

\(^7\) See *Hall*, 107 U.S. at 96-97. The Court stated:

It is contended that the safes were experimental, and that the use was a use for experiment. But we are of the opinion that this was not so, and that the case falls within the principle laid down by this court in *Coffin v. Ogden*. The invention was complete in those safes. It was capable of producing the results sought to be accomplished, though not as thoroughly as with the use of welded steel and iron plates. . . . As to the use being experimental, it is not shown that any attempt was made to see if the plates of the safes could be stripped off, and thus to prove whether or not the conical bolts were efficient. The safes were sold, and, apparently, no experiment and no experimental use were thought to be necessary. The idea of a use for experiment was an afterthought. An invention of the kind might be in use and no burglarious attempt be ever made to enter the safe, and it might be said that the use of the invention was always experimental until the burglar-
Finally, the Court considered the experimental use doctrine in a case involving machinery for making shoe buckles in Smith & Griggs Manufacturing Co. v. Sprague. The patent owner in that case attempted to show that the use of his later-patented machine to make and sell over seven million shoe buckles was merely experimental, but the Court rejected this assertion and held the patent invalid. In so doing, the Court resorted once again to the two-part test of City of Elizabeth, stating that:

[T]he use of an invention by the inventor himself, or by another person under his direction, by way of experiment, and in order to bring the invention to perfection, has never been regarded in this court as such a public use as under the statute defeats his right to a patent.

By this statement the Court resurrected the form, as well as the substance, of the City of Elizabeth formulation, using the term “perfection” in a manner synonymous with its intermittent use of “completion.”

When read together, the Supreme Court cases addressing the experimental use issue make clear the Court’s view that the type of experimental use which will negate the “on sale” and “public use” bars is confined to tests and experiments for the purpose of perfecting an incomplete invention. In the cases where the use or commercialization was held to be experimental, and thus not a bar, the invention was incomplete and the activity was for the pur-

ous attempt should be made, and so the use would never be other than experimental. But it is apparent that there was no experimental use in this case, either intended or actual. The foregoing views ... are in accordance with those announced in Egbert v. Lippmann.

Id. (citations omitted).

60 123 U.S. 249 (1887).

61 Id. at 266.

62 Id. at 257 (citing Egbert v. Lippmann, 104 U.S. 333 (1881); City of Elizabeth v. American Nicholson Pavement Co., 97 U.S. 126 (1877)).

63 By citing Egbert (“complete”) alongside City of Elizabeth (“perfection”), the Court implied that the terms “perfection” and “completion” were synonymous. In its discussion of the burden of proof on the experimental use issue, the Court in Smith & Griggs confirmed that implication: “[W]here the defence is ... that the use was not a public use in the sense of the statute, because it was for the purpose of perfecting an incomplete invention by tests and experiments, the proof on the part of the patentee ... should be full, unequivocal, and convincing.” Id. at 264 (emphasis added).


65 The most prominent case holding that the use was experimental is City of Elizabeth.
pose of perfecting the invention. On the other hand, in those cases where the use or commercialization was held to be a bar, the invention was complete and the use or commercialization was not experimental in nature.

The two prongs of the City of Elizabeth test, however, do not always coincide. For example, in Worley v. Tobacco Co., the Court based its rejection of the patent owner's assertion of experimental use solely on the holding that the invention was complete. The Court noted that the inventor's use of his process for finishing tobacco plugs was "experimental" in nature, but that it was directed to features other than the claimed invention. Thus, the import of Worley is that completion of the invention ends the period of experimental use that will negate the "on sale" or "public use" bars.

Bearing in mind that completion is marked by reduction to practice, and that the unifying theme running throughout the Supreme Court cases on experimental use is that experimental use ends with completion, the inevitable conclusion is that reduction to practice ends the period of experimental use of the kind that will negate the "on sale" or "public use" bars.

Later cases and commentators have opined that the City of Elizabeth pavement invention was perfected or completed when it was laid down. That view, however, equates perfection and completion with mere construction of a physical embodiment. Contemporary usage suggests that perfection and completion are established only by reduction to practice, or in the words of the Supreme Court, by showing that the invention will answer the purpose intended. The pavement in City of Elizabeth was not, of course, complete or perfected in this sense of those terms.

The only other nineteenth century Supreme Court case upholding experimental use was Beedle v. Bennett, 122 U.S. 71, 76-77 (1887). Although the Court did not expressly state that the invention was neither completed, perfected, nor reduced to practice, that conclusion may fairly be implied.


Id. at 340 (1881).

Id. at 343. The Court stated:

[The inventor] testifies that [his invention] was complete, and he became satisfied with its results, in 1871. It is true that after that date he made experiments to decide upon the best mode of constructing his finishers so as to secure the requisite strength; but the finisher constituted no part of his patented invention. In 1871 his invention was complete, and in his opinion successful, and was adhered to from that date, without change.

Id.

In another case, International Tooth Crown Co. v. Gaylord, 140 U.S. 55 (1891), the Court rejected an assertion of experimental use on the sole ground that the activities were not experimental in nature. See id. at 62-63.
B. Reduction to Practice is Not a Requirement of the Bars

A use or commercialization of an embodiment of a not-yet reduced to practice invention can be non-experimental in nature, i.e., for a purpose other than reducing the invention to practice. For example, in City of Elizabeth, the inventor was performing tests to satisfy himself that his pavement would work for its intended purpose. Until he satisfied himself, the invention was not reduced to practice and, hence, neither completed nor perfected. Nevertheless, the Court cautioned:

So long as he does not voluntarily allow others to make it and use it, and so long as it is not on sale for general use, he keeps the invention under his own control, and does not lose his title to a patent.

... But if the inventor allows his machine to be used by other persons generally, either with or without compensation, or if it is, with his consent, put on sale for such use, then it will be in public use and on public sale, within the meaning of the law.

... Had the city of Boston, or other parties, used the invention, by laying down the pavement in other streets and places, with Nicholson's consent and allowance, then, indeed, the invention itself would have been in public use, within the meaning of the law.

The City of Elizabeth Court was adamant: "Any attempt to use [the invention] for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent." The Court reiterated that view in Smith & Griggs Manufacturing Co. v. Sprague, and Root

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60 City of Elizabeth, 97 U.S. at 135-36.
61 Id. at 137.
62 123 U.S. 249, 256 (1887).

A use by the inventor, for the purpose of testing the machine, in order by experiment to devise additional means for perfecting the success of its operation, is admissible; and where, as incident to such use, the product of its operation is disposed of by sale, such profit from its use does not change its character; but where the use is mainly for the purposes of trade and profit, and the experiment is merely incidental to that, the principal and not the incident must give character to the use. The thing implied as excepted out of the prohibition of the statute is a use which may be properly characterized as substantially for purposes of experiment. Where the substantial use is not for that purpose, but is otherwise public, and for more than two years prior to the application, it comes within the prohibition.
v. Third Avenue Railroad.\textsuperscript{63} But the most succinct explanation of the rule that completion of an invention is not required for application of the bars is found in a circuit court case, Lyman v. Maypole,\textsuperscript{64} where it was stated that "when an inventor puts his incomplete or experimental device upon the market and sells it, as a manufacturer, more than two years before he applies for his patent, he gives to the public the device in the condition or stage of development in which he sells it."\textsuperscript{65}

Thus, as indicated by the Supreme Court in the previously noted cases, completion, or reduction to practice, is not required to invoke the bars. Rather, a pre-reduction to practice use or commercialization of the invention for a purpose other than reducing the invention to practice would be sufficient to invoke the bars.\textsuperscript{66}

C. Experimental Use Is Not an Exception to the Bars

In sum, the early Supreme Court cases portray an understanding of the "public use" and "on sale" bars in which what is now called reduction to practice played an important part. As soon as the invention had been reduced to practice, its use could no longer

\textsuperscript{63} 146 U.S. 210, 223-26 (1892).
\textsuperscript{64} 19 F. 735 (C.C.N.D. Ill. 1884).
\textsuperscript{65} Id. at 736-37.
\textsuperscript{66} This is not to say that any profit, no matter how incidental, will prevent a pre-reduction to practice use or sale from being characterized as experimental. Some courts believe that the activity has to be "solely" or "purely" experimental. See, e.g., Dart Indus. v. E.I. DuPont De Nemours & Co., 489 F.2d 1359, 1366 & n.13, 179 U.S.P.Q. (BNA) 392, 397 & n.13 (7th Cir. 1973) ("'public use' bar may be avoided by proof that the use was purely experimental"), cert. denied, 417 U.S. 933 (1974); Dunlop Co. v. Kelsey-Hayes Co., 484 F.2d 407, 415, 179 U.S.P.Q. (BNA) 129, 134 (6th Cir. 1973) (prior uses not purely experimental and therefore patent invalid), cert. denied, 415 U.S. 917 (1974); Minnesota Mining & Mfg. Co. v. Kent Indus., 409 F.2d 99, 100, 161 U.S.P.Q. (BNA) 321, 322 (6th Cir. 1969) (defendant has burden of proving activities solely experimental); National Biscuit Co. v. Crown Baking Co., 105 F.2d 422, 426, 42 U.S.P.Q. (BNA) 214, 217 (1st Cir. 1939) (burden on plaintiff to show attempted use and sales merely to test invention). See generally Welch, Patent Law's Ephemeral Experimental Use Doctrine: Judicial Lip Service to a Judicial Misnomer or the Experimental Stage Doctrine, 11 U. Tol. L. Rev. 865, 875 (1980) (use not public use if conducted only for "purposes naturally incident to testing").

In Smith & Griggs, however, the Court held that the use must be "substantially for purposes of experiment" in order to be deemed experimental. 123 U.S. at 256. In other words, there could be a profit motive, if merely "incidental." Id.; see also Zieg, Developments in the Law of "On Sale," 58 J. Pat. Off. Soc'y 470, 501-02 (1976) (urging that the Supreme Court resolve the apparent conflict). The Court of Customs and Patent Appeals rejected the position that experimental use cannot involve any commercial exploitation in In re Dybel, 524 F.2d 1393, 1399 n.5, 187 U.S.P.Q. (BNA) 593, 597 n.5 (C.C.P.A. 1975).
be "experimental," and any public use or commercialization created a bar. If the invention had not yet been reduced to practice, any activity attended by a more than incidental profit motive created a bar. Most importantly, if an activity was to be labeled "experimental," within the meaning of the doctrine, it must have been performed for the purpose of reducing the invention to practice.

From this framework, three principles become evident. First, application of the "on sale" or "public use" bars does not require reduction to practice. Second, reduction to practice ends experimental use. Third, experimental use is not an exception to the bar. Rather, an activity is either a "public use" or "on sale" bar or it is not depending on the intent motivating the activity, i.e., whether it is performed for the purpose of reducing the invention to practice.

IV. THE LOWER COURTS

Just before the turn of the century, the Supreme Court began taking fewer and fewer patent cases.67 This effectively left the lower federal courts as the final arbiter of patent disputes. These courts strayed far from the analytical framework employed by the Supreme Court in "public use" and "on sale" bar cases.

A. Experimental Use After Reduction to Practice

The effect of a reduction to practice is one aspect of the Supreme Court's analytical framework regarding which the lower courts have been less than faithful to precedent. Although many recent cases and commentators have hypothesized that in accordance with the Supreme Court's view, reduction to practice ends the period of experimentation which will negate the existence of a "public use" or "on sale" bar,68 that view has not been unanimous,
as several courts$^{69}$ and commentators$^{70}$ have taken the contrary view.

Three cases often cited for the proposition that experimental use can continue after reduction to practice are *Aerovox Corp. v. Polymet Manufacturing Corp.*, $^{71}$ *General Motors Corp. v. Bendix Aviation Corp.*, $^{72}$ and *Atlas v. Eastern Air Lines.* $^{73}$ The Fifth Circuit reviewed these three cases and resolved, albeit temporarily, the apparent split of authority over whether experimental use can extend beyond reduction to practice in *In re Yarn Processing Patent Validity Litigation.* $^{74}$ The *Yarn Processing* court recognized the cases stating that experimental use can continue after reduction to practice, $^{75}$ but harmonized them with the cases stating that reduction to practice ends experimental use. The court started its analysis by defining a four-phase model of the inventive process: conception, construction of a physical embodiment, experimentation, and application for a patent. $^{76}$ After defining reduction to

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$^{70}$ See, e.g., 2 D. CHIUSON, supra note 30, § 6.0217[b][i], at 6-53 (“better and prevailing view is that experimental use can indeed continue even after the invention has been completed and reduced to practice”); *Pigott, The Concepts of Public Use and Sale*, 49 J. PAT. OFF. SOC'Y 399, 413, 415, 425 (1967) (period of experimentation can continue after reduction to practice); Note, *Public Use: The Inventor’s Dilemma*, 26 GEO. WASH. L. REV. 297, 303 (1958) (experiments may continue after reduction to practice to further perfect device); cf. *Welch*, supra note 66, at 875 (recognizing case law finding experimental use after reduction to practice but suggesting this is wrong and should be changed by Congress).

$^{71}$ 67 F.2d 860, 20 U.S.P.Q. (BNA) 119 (2d Cir. 1933) (dicta).


$^{75}$ Id. at 281, 183 U.S.P.Q. (BNA) at 72.

$^{76}$ Id. at 275, 183 U.S.P.Q. (BNA) at 67; cf. *Automatic Weighing Mach. Co. v. Pneumatic Scale Corp.*, 166 F. 288, 291 (1st Cir. 1909) (three-stage model: conception, application, and patent, contrasted with four-stage model: conception, reduction to practice, application, and patent); *Gould Inc. v. United States*, 579 F.2d 571, 583, 198 U.S.P.Q. (BNA) 156,
practice as ending the third phase, experimentation, the Fifth Circuit went on to harmonize the cases. The court explained that the cases stating that experimental use extends beyond reduction to practice used "reduction to practice" to mean construction of a physical embodiment, what the court termed the "layman's" definition:

[T]he legal definition of the date of reduction to practice appears to equate it precisely with the end of the experimental period for purposes of § 102(b). . . . The purpose of the experimental exception to § 102(b) is to allow the inventor sufficient time to perfect his invention. An invention is "perfected" for purposes of patentability once it has been reduced to practice by sufficient testing and experimentation to demonstrate its utility. At that point, then, further experimentation is not necessary before applying for a patent, and it would seem that the experimental period should end. . . .

Numerous cases, however, have explicitly extended the experimental period past the point of reduction to practice. . . .

This apparent conflict stems primarily from the differing definitions of "reduction to practice" being applied. The cases are in substantial agreement that an inventor is permitted to experiment on his invention after reducing it to reality (the end of phase two of our model) without encountering the "on sale" or "in public use" bars, so long as the experimentation is his primary objective and it is reasonably necessary for demonstrating the device's utility and its lack of need for further refinement. By saying this phase three experimentation occurs subsequent to the "reduction to practice," the cases in the General Motors Corp. v. Bendix Aviation Corp. line are merely using the lay definition of the term, equating it with the end of phase two of our model. Despite the differences in terminology, the result under either line of cases is the same: an inventor is permitted a reasonable amount of experimentation in phase three during which a placing on sale or in public use will not bar the patent under § 102(b), so long as the public use or sale is only incidental to the experimentation. 77

_Yarn Processing_ notwithstanding, authority still exists for the proposition that experimental use can extend beyond reduction to

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167 (Ct. Cl. 1978) (three-phase model: conception, physical embodiment, and reduction to practice).

77 498 F.2d at 280-82, 183 U.S.P.Q. (BNA) at 71-72 (citation omitted).
Indeed, Professor Chisum correctly asserts that this proposition is the "prevailing view." The position has been adopted, at least impliedly, by the Second Circuit in *Timely Products Corp. v. Arron*, and by a host of other courts presented with the issue subsequent to *Timely Products*.

In *Timely Products*, the Second Circuit formulated a three-part test for application of the "on sale" bar. The court stated the second requirement as follows:

> The invention must have been tested sufficiently to verify that it is operable and commercially marketable. This is simply another way of expressing the principle that an invention cannot be offered for sale until it is completed, which requires not merely its conception but its reduction to practice.

The third *Timely Products* requirement was that "the sale must be primarily for profit rather than for experimental purposes." The coexistence of these two requirements in the same test implies that the Second Circuit thought that the period of experimental use could extend beyond the date of reduction to practice.

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79 2 D. CHISUM, supra note 30, § 6.02[7][b][i].


81 *Id.* at 302, 187 U.S.P.Q. (BNA) at 268. The first requirement was that "[t]he complete invention claimed must have been embodied in or obvious in view of the thing offered for sale." *Id.*, 187 U.S.P.Q. (BNA) at 267.

redundant.

*Timely Products* is important for two reasons. First, that it was decided after *Yarn Processing* and cites that case as authority for other propositions implies that the court recognized and rejected the *Yarn Processing* harmonization of the cases holding that experimental use extends beyond the date of reduction to practice. Second, the *Timely Products* test became widely accepted by district courts as the test for determining application of the “on sale” bar.

**B. Reduction to Practice is a Requirement of the Bars**

The lower courts early on strayed far from the Supreme Court’s analytical framework by instituting reduction to practice as a prerequisite to creation of a “public use” or “on sale” bar. Indeed, the regional circuits that considered the issue appear unanimous in imposing the reduction to practice requirement. These regional courts expressed a variety of reasons for adopting the requirement. One rationale was that an invention could not be placed “on sale” or in “public use” until it was an invention, *i.e.*, reduced to practice. A second group of courts derived support from legislative comments in the House and Senate Reports of the 1939 Patent Act for the conclusion that Congress mandated completion of the invention as a prerequisite of the bars. Completion, those courts recognized, requires reduction to practice. A third group of courts simply followed the precedential path created by

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the first two, adding little, if any, analysis. 88

Even though these courts instituted what they termed reduction to practice as a requirement for creation of the bars, they were not very strict when it came to enforcing that requirement. 89 As the Federal Circuit was to later observe, "when faced with a specific factual situation which appeared to fall within the intent of the statutory bar but did not technically satisfy the requirements for reduction to practice, these courts . . . stepped back from a rigid application of that requirement." 90 Nevertheless, the requirement of reduction to practice generally remained, and those questioning it were few and far between. 91

C. Experimental Use is an Exception to the Bars

Thus, the lower federal courts employed a "public use" and "on sale" framework vastly different from that developed by the Supreme Court in its early cases. The Supreme Court treated reduction to practice as ending experimental use and viewed experimental use as a pre-reduction to practice negation of the "public use" and "on sale" bars. Under that view, the bars could apply regardless of whether the invention was reduced to practice. The lower courts, however, viewed reduction to practice as necessary for creation of the bars and viewed experimental use as a post-reduction to practice exception to application of the bars.

V. THE FEDERAL CIRCUIT

By 1982, there had developed two fundamentally different un-

understandings of the "public use" and "on sale" bars. One group of
courts and commentators, including the Supreme Court, had con-
cluded that reduction to practice ends experimental use and is not
required for creation of the bars—that is, experimental use negates
the bars. The other group had concluded that reduction to practice
begins the period of potential experimental use and is required for
creation of the bars—that is, experimental use is an exception to
the bars. This split of authority will have to be resolved, if it has
not been already, by the United States Court of Appeals for the
Federal Circuit.

Judicially autonomous from the regional circuit courts of ap-
peals and the district courts, the Federal Circuit enjoys a unique
latitude within which it can permissibly fashion the law. That lati-
tude is restrained only by the decisions of the Supreme Court and
prior Federal Circuit panels, as well as the holdings of the Federal
Circuit's predecessor courts: the Court of Customs and Patent Ap-
peals, and the Court of Claims. Bearing these constraints in
mind, it is appropriate to review the Federal Circuit precedent.

A. Reduction to Practice is Not a Requirement for the "On
Sale" Bar

In a 1987 case, UMC Electronics Co. v. United States, the
Federal Circuit held that reduction to practice is not a require-
ment for creation of the "on sale" bar. The court reviewed the
case law most often cited as establishing that reduction to practice
is a requirement for creation of an "on sale" bar, and concluded
that none of those cases, Great Northern Corp. v. Davis Core &
Pad Co., Shatterproof Glass Corp. v. Libbey-Owens Ford Co., or In re Dybel, held that creation of the "on sale" bar required

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84 Id. The court limited its holding to the "on sale" bar, cautioning that "[t]he public use bar of section 102(b) implicates different considerations and nothing said here should be construed to encompass that part of the statute." Id. at 652 n.5, 2 U.S.P.Q.2d (BNA) at 1468 n.6.
85 Id. at 654, 2 U.S.P.Q.2d (BNA) at 1469-70.
reduction to practice. The court stated that:

A full reading of the Dybel, Shatterproof Glass, and Great Northern decisions makes it apparent that the parties did not raise and the court did not squarely address the issue of whether reduction to practice is an indispensable requirement of the on-sale bar. . . . It, therefore, cannot be said that this court has taken a definitive position either way on the issue we address here.96

In dissent, Judge Smith maintained that those same three cases held that creation of the “on sale” bar required reduction to practice.100 Moreover, he relied on a handful of cases in which the Federal Circuit had reviewed district court judgments which were based upon an application of the three-step Timely Products test.101 That test requires that for creation of the “on sale” bar the invention must have been reduced to practice.102

Despite the Federal Circuit’s explicit adoption of some aspects of the Timely Products analysis, the reduction to practice requirement was never among them. The Court of Customs and Patent Appeals had reviewed a Patent Office Board of Appeals decision using the Timely Products test, and stated broadly, “We agree with these principles.”103 However, wholesale adoption, outside of dicta, had never occurred.

Indeed, the Federal Circuit anticipated its rejection of the reduction to practice requirements in Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.104 In Barmag, although affirming a district court holding that a bar was created under the Timely Products test, the court cautioned:

It is not difficult to conceive of a situation where, because commercial benefits outside the allowed time have been great, the technical requisite of Timely Products for a physical embodiment, particularly for a simple product, would defeat the statutory policy and we, therefore, do not adopt the Timely Products

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96 UMC Elecs., 816 F.2d at 654, 2 U.S.P.Q.2d (BNA) at 1470.
100 Id. at 662-63, 2 U.S.P.Q.2d (BNA) at 1476-77 (Smith, J., dissenting).
102 See supra note 81 and accompanying text.
test as the answer in all cases. Thus, the Barmag court cautioned that in future cases it might not adhere to the Timely Products reduction to practice requirement. Although dicta, the Barmag statement served notice that the court had not yet decided whether the "public use" and "on sale" bars required reduction to practice, but that it intended to do so on the basis of the policies underlying the bars, rather than by blind adherence to the mechanical Timely Products approach. After expressing discomfort with the reduction to practice requirement of the Timely Products test in Barmag and other cases, the court, in UMC Electronics, rejected it outright with regard to the "on sale" bar.

In sum, the Federal Circuit has definitively held that an "on sale" bar can arise without a reduction to practice. In doing so, the court has eschewed blind adherence to regional circuit court precedent of doubtful value, turning instead to Supreme Court precedent and to the policies underlying the bar. Although the court has given no indication whether creation of the "public use" bar requires reduction to practice, one thing appears certain: the court will answer that question by looking at those same policies.

B. Reduction to Practice and Experimental Use

In an early case, In re Josserand, the Court of Customs and Patent Appeals addressed the issue of whether reduction to practice ends the experimental use period. There the court concluded that the invention had been reduced to practice, but went on to consider whether the use was experimental. The court reasoned:

[W]e must look to all the pertinent evidence in both proceedings and determine therefrom whether such experimentation as was carried on was engaged in for the purpose of perfecting the structure of the [claimed invention], or engaged in for the purpose of experimentation as to what the public reaction to such an ar-

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105 Id. at 837, 221 U.S.P.Q. (BNA) at 565.
106 See supra text accompanying note 28.
109 Id. at 490, 89 U.S.P.Q. (BNA) at 375.
rangement... would be.\textsuperscript{110} The court concluded that the use was not of a nature that would negate the bar, reasoning that "[t]he experimentation... was indulged to see if public patronage could be attracted—not for the purpose of testing the structure."\textsuperscript{111} Although the court also stated that an experimental use period could extend beyond reduction to practice of the claimed invention, it did not so hold.

The Federal Circuit's other predecessor, the Court of Claims, had also visited this issue. In Gould Inc. v. United States,\textsuperscript{112} a Court of Claims trial judge rejected "[p]laintiff's arguments that a reduction to practice can occur before an experimental use period has been completed [as] unpersuasive and contrary to logic and the law."\textsuperscript{113} The trial judge held that the "on sale" bar applied by virtue of offers for sale made after reduction to practice. On appeal, the Court of Claims adopted the decision of the trial judge,\textsuperscript{114} but modified it by deleting the "unpersuasive and contrary to logic and law" language.\textsuperscript{115} The court did not, however, alter the other language in the trial judge's opinion confining experimental use which will negate an "on sale" or "public use" bar to activities preceding reduction to practice:

After the invention has been built, the inventor (except... where because of the simplicity of the invention or because of the certainty of the inventor that the invention can be manufactured

\textsuperscript{110} Id.
\textsuperscript{111} Id. at 494, 89 U.S.P.Q. (BNA) at 378. The holding of Josserand demonstrates that even at its most liberal treatment of experimental use, Federal Circuit precedent does not equate market testing with experimental use. One commentator has suggested that market testing of the claimed invention should fall within the experimental use doctrine because such testing is beneficial to the consumer. See Note, The Validity of Patents After Market Testing: A New and Improved Experimental Use Doctrine?, 85 COLUM. L. REV. 371, 388 (1985). However, the premise that market testing is beneficial to the consumer does not compel the conclusion that it should be deemed experimental use. Congress has already given the inventor one year in which to conduct his market testing. Further, any reliance on City of Elizabeth and TP Laboratories as examples of market testing equated with experimental use is wholly misplaced. Both cases involved tests to determine the durability of the claimed invention, tests required in those circumstances to arrive at a reduction to practice. Neither involved market testing. Because market testing, if performed at all, usually follows reduction to practice, the rule that reduction to practice ends experimental use would moot the suggestion that experimental use be expanded to include market testing.

\textsuperscript{113} Id. at 122.
\textsuperscript{114} 579 F.2d 571, 571, 198 U.S.P.Q. (BNA) 156, 157 (Ct. Cl. 1978).
\textsuperscript{115} Id. at 583, 198 U.S.P.Q. (BNA) at 167.
and sold as it currently exists) conducts tests needed to convince himself that the invention is capable of performing its intended purpose in its intended environment. This latter stage permits, inter alia, the experimental use necessary to satisfy the inventor of the merits of the invention. Then, and only then, [does] an actual reduction to practice of the invention occur[].

Rather than relying solely on the reasoning that reduction to practice ended the experimental period, the Gould court additionally considered the non-experimental nature of the patentee's activities. Thus, although one of the Gould court's holdings was that reduction to practice ends experimental use, the court's deletion of language from the trial court's opinion and its reliance on other reasons blunted that holding.

Judge Nichols dissented vigorously in Gould. In his view, the experiments were necessary to sell embodiments of the claimed invention to the government. Because “[t]he time for commercial exploitation . . . had not begun,” he believed that the experimental period continued past reduction to practice. Claiming to derive support from Yarn Processing, Judge Nichols opined that “public use or sale more than one year prior to the patent application will be excused, even after the invention could be deemed reduced to practice in the ‘legal sense,’ if experimentation is still going on that is reasonably necessary ‘to determine whether further refinement is needed.’”

The jurisprudence inherited by the Federal Circuit regarding the relationship between experimental use and reduction to practice, Josserand and Gould, points in opposite directions. Unfortu-

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117 Gould, 579 F.2d at 583, 198 U.S.P.Q. (BNA) at 167.

118 Id. at 585, 198 U.S.P.Q. (BNA) at 168 (Nichols, J., dissenting).

119 See id. (Nichols, J., dissenting). Judge Nichols' reliance on Yarn Processing was limited to its citation of cases supporting the proposition that experimental use can extend beyond reduction to practice. The Yarn Processing court harmonized those cases on the ground that they equated reduction to practice “with the initial reduction of the invention to reality,” i.e., with the construction of a physical embodiment of the invention. See Yarn Processing, 498 F.2d at 282, 183 U.S.P.Q. (BNA) at 73. The Yarn Processing court held that the experimental use period extended to reduction to practice, rejecting the argument that experimental use ends once a physical embodiment of the invention is constructed. See id.

nately, the court has never resolved the conflict.

In one of the Federal Circuit's early cases, *In re Smith*, the court avoided an opportunity to address the issue of experimental use after reduction to practice. In a discussion captioned "Appellant's Arguments" the court stated:

> In support of their arguments, the appellants cite Poole v. Mossinghoff . . . . That court (Markey, C.J., sitting by designation) stated:

> There is a difference between the requirements of a reduction to practice and industry requirements for a commercially practical device. There may be an experimental use following reduction to practice as long as the experiments are, as they were here, part of an attempt to further refine the device.

Although the court observed that it disagreed with appellant's arguments, it did not further address the issue of experimental use after reduction to practice. Thus, although *Smith* appears to disapprove of the concept of experimental use after reduction to practice, it does not so hold.

In the cases in which the Federal Circuit reviewed district court applications of the *Timely Products* test, the court seemed to assume that reduction to practice did not end experimental use. Accordingly, the court occasionally looked to see whether the use or commercialization was experimental after determining that the invention had been reduced to practice. The court has also considered this issue in cases not involving the *Timely Products* test. However, in none of these cases did the court hold, or affirm a holding, that a use or commercialization was experimental

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122 Id. at 1133-34, 218 U.S.P.Q. (BNA) at 982 (quoting Poole v. Mossinghoff, 214 U.S.P.Q. (BNA) 506, 510 (D.D.C. 1982)).
123 Id. at 1134, 218 U.S.P.Q. (BNA) at 982.
even though the invention had been reduced to practice.\textsuperscript{127}

Both the majority and the dissent in \textit{UMC Electronics} indulged in an opportunity to discuss the experimental use after reduction to practice issue. The majority tempered its rejection of reduction to practice as a requirement for application of the "on sale" bar with the caveat that reduction to practice is still "an important analytical tool in an on-sale analysis":\textsuperscript{128} "A holding that there has or has not been a reduction to practice of the claimed invention before the critical date may well determine whether . . . a sale was primarily for an experimental purpose."\textsuperscript{129} Judge Smith disagreed:

Even after an invention was reduced to practice in the interference sense, courts [have] recognized that the invention still may not have reached the stage at which a section 102(b) bar could fairly attach: "The work of the inventor must be finished, physically as well as mentally. Nothing must be left for the inventive genius of the public . . . ." The invention must be placed "into the hands of the public in a condition for immediate use, requiring no further speculation or experiment . . . for the accomplishment of its intended ends."\textsuperscript{130}

More recently, in \textit{Baker Oil Tools, Inc. v. Geo Vann, Inc.},\textsuperscript{131} the Federal Circuit appeared to have been presented with an opportunity to settle the issue. The plaintiff in a patent infringement suit had previously averred in an interference proceeding that the claimed invention had been reduced to practice well before the critical date. Nevertheless, the plaintiff sought to excuse its pre-critical date sales as experimental. The district court held that reduction to practice ended the period of experimental use as a matter of law. The Federal Circuit did not, however, reach the issue,

\textsuperscript{127} See supra note 126.


\textsuperscript{129} Id.

\textsuperscript{130} Id. at 660-61, 2 U.S.P.Q.2d (BNA) at 1475 (Smith, J., dissenting) (footnotes omitted). The first quote is from Robinson’s treatise. 1 W. ROBINSON, \textit{supra} note 1, § 127 (section entitled “Reduction to Practice Must Demonstrate that the Idea of Means is Practically Useful”). That passage discusses reduction to practice, and was used in early cases as the definition of reduction to practice. See, e.g., Sydeman v. Thoma, 32 App. D.C. 362, 372 (1909); Gallagher v. Hien, 25 App. D.C. 77, 82 (1905). The second quote is also from Robinson’s treatise. 1 W. ROBINSON, \textit{supra} note 1, § 125 (section entitled “Reduction to Practice Necessary to Complete the Inventive Act”). It, like the first quote, discusses reduction to practice, not some further state of development necessary to trigger the bar.

\textsuperscript{131} 828 F.2d 1558, 4 U.S.P.Q.2d (BNA) 1210 (Fed. Cir. 1987).
due to its holding that the plaintiff's earlier admission of reduction to practice was not binding.\textsuperscript{132}

The conflicting statements of the Federal Circuit's predecessor courts as well as its own continued avoidance of the issue suggest that the issue of whether reduction to practice ends experimental use is still very much alive. The court's reluctance to decide this issue may stem from its recognition that rigid standards are especially unsuited to section 102(b) bars because "the policies underlying the bar[s], in effect, define [them]."\textsuperscript{133} Although the court has often expressed its antipathy to rigid standards in applying the section 102(b) bars, perhaps no statement is as clear as that found in an unpublished "on sale" and "public use" bar case, \textit{Ricon Corp. v. Adaptive Driving Systems, Inc.}:\textsuperscript{134}

In none of our section 102(b) cases have we created a list of incantations which the district court must utter to ward off reversal on appeal. Certain circumstances may render any one or all of the factors listed in our cases irrelevant in applying section 102(b). Application of the on sale and public use bars of section 102(b) presents "an infinite variety of legal problems wholly unsuited to mechanically-applied, technical rules . . . . As a result, this court has been careful to avoid erecting rigid standards for section 102(b)." . . . Instead, this court has consistently emphasized that the totality of the circumstances must be considered in determining whether a particular event creates an on sale or public use bar.\textsuperscript{135}

Although it is entirely logical that if experimental use must be for the purpose of reducing the invention to practice, then reduction to practice must end the period of experimental use, the court's reluctance to so hold is understandable. Today's logical holding may soon be regretted when the exceptional instance arises. One fact, however, counsels for the court to endorse that

\textsuperscript{132} See id. at 1562, 4 U.S.P.Q.2d (BNA) at 1212-13; see also ARNOLD, WHITE & DURKEE, 1988-89 \textit{PATENT LAW HANDBOOK} § 1.01[2] (P. Brantley ed. 1988) (in \textit{Baker Oil}, "Federal Circuit neatly sidestepped issue of whether experimental use can continue after an invention has been reduced to practice"). \textit{Contra} 2 D. CHISUM, \textit{supra} note 30, § 6.02[7][b][i] (interpreting \textit{Baker Oil} as holding that there can be experimental use after reduction to practice).


\textsuperscript{134} No. 86-1352, slip op. (Fed. Cir. June 26, 1987).

\textsuperscript{135} Id., slip op. at 4-5.
truism. The "on sale" and "public use" bar analyses are often conducted with the date of reduction to practice already established.\footnote{See Nicholson v. Carl W. Mullis Eng'g & Mfg. Co., 315 F.2d 532, 534, 137 U.S.P.Q. (BNA) 13, 15 (4th Cir.) (date of reduction to practice admitted in rule 131 affidavit), cert. denied, 375 U.S. 828 (1963).} Therefore, a significant event in the inventive process has often been identified, an event which shall be shown to extinguish any policies on which the patent owner could base a claim of experimental use. If the Federal Circuit is ever to decide the issue, it is likely to return to the policies underlying the "on sale" and "public use" bars, as it has done over and over again.

C. Experimental Use is Not an Exception to the Bars

In \textit{TP Laboratories, Inc. v. Professional Positioners, Inc.},\footnote{724 F.2d 965, 220 U.S.P.Q. (BNA) 577 (Fed. Cir.), cert. denied, 469 U.S. 826 (1984).} the Federal Circuit rejected the proposition that experimental use is an "exception" to the "public use" bar. The court returned to the Supreme Court's seminal \textit{City of Elizabeth} opinion and decided that "if a use is experimental, . . . 'public use' is negated."\footnote{Id. at 971, 220 U.S.P.Q. (BNA) at 582.} The difference, the court observed, is not merely semantic. Although the Federal Circuit focused on the resulting allocation of burdens of proof, production, and persuasion, the difference goes much deeper. In eschewing the "exception" rationale in favor of the "negation" rationale, the court turned from the regional circuits' analysis back to that of the Supreme Court.

The Federal Circuit set out the skeletal structure of its "public use" analysis in \textit{TP Laboratories}:

\begin{quote}
[T]he court should . . . look[] at all of the evidence put forth by both parties and should . . . decide[] whether the entirety of the evidence . . . [leads] to the conclusion that there ha[s] been [a] "public use." . . . [I]f a \textit{prima facie} case is made of public use, the patent owner must be able to point to or must come forward with convincing evidence to counter that showing.\footnote{Id. (footnote omitted).}
\end{quote}

The court identified the requirements for a \textit{prima facie} case of the "public use" bar in \textit{TP Laboratories}\footnote{See id. at 971-72, 220 U.S.P.Q. (BNA) at 582-83.} and for a \textit{prima facie} case of the "on sale" bar in \textit{UMC Electronics},\footnote{See UMC Elecs. Co. v. United States, 816 F.2d 647, 656, 2 U.S.P.Q.2d (BNA) 1465, 1472 (Fed. Cir. 1987), cert. denied, 108 S. Ct. 748 (1988).} as a precritical date.
use or commercialization of the claimed invention.  

Once a prima facie case of the "public use" or "on sale" bars is established, one must turn to all the facts and circumstances. Those facts and circumstances include: the length of the test period, the number of tests conducted, and the relation between the tests and those of other similar devices; whether payment was made; whether the use, sale, or offer for sale was made subject to a confidentiality agreement; whether records were kept; and whether persons other than the inventor conducted the asserted experiments.  

After marshalling all the facts and circumstances, one must analyze them in light of the policies underlying the bar. Although the Federal Circuit has not articulated its policy weighing process, it seems that implication of any one of the policies favoring the public will sustain the bar absent the presence of a policy favoring the inventor.

This analytical framework makes no mention of reduction to practice, either in the sense of the regional circuits, that reduction to practice begins the period of applicability of the bars; or in the sense of the Supreme Court, that experimental use is a use or commercialization for the purpose of reducing the invention to practice. In **TP Laboratories and UMC Electronics**, the Federal Circuit rejected the regional circuits' analytical framework. It remains to be seen whether the Supreme Court's analytical framework will fit within the Federal Circuit's policy approach. To determine whether it will, we must turn to the policies themselves.

**VI. The Policies**

In **General Electric Co. v. United States**, the Court of Claims articulated a series of policies underlying the "on sale" and "public use" bars: (1) the "policy against removing inventions from the public which the public has justifiably come to believe are..."
freely available to all as a consequence of prolonged sales activity”; (2) the “policy favoring prompt and widespread disclosure of new inventions to the public”; (3) the policy against allowing the inventor to commercially exploit “the exclusivity of his invention substantially beyond the statutorily authorized 17-year period”; and (4) the policy allowing “the inventor a reasonable amount of time following sales activity (set by statute as one year) to determine whether a patent is a worthwhile investment.”

The Federal Circuit has repeatedly turned to these policies in order to determine whether a particular use or commercial activity raises an “on sale” or “public use” bar. The court has also looked to these policies in order to determine the validity of certain rules about when the bars are triggered.

A. Policy to Avoid Detrimental Public Reliance

The Supreme Court has emphasized the importance of the assurance that ideas once interjected into the public domain remain there for public use. Closely related to this objective is the notion expressed by Congress in amending the “on sale” and “public use” bars in 1939, that, as a result of pre-application disclosure of an invention, “the public may . . . come to believe that the invention is open to anyone.” Thus, an inventor should be prohibited from obtaining a patent after extended commercialization or public disclosure of the invention has caused others to start making, using, or selling it in the belief that the invention is freely available.

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146 Id. at 61, 211 U.S.P.Q. (BNA) at 873.

to the public.\textsuperscript{181} Although patent applications are kept secret by the United States Patent and Trademark Office, the public's reasonable belief that an invention is available without restriction is discouraged by the inventor marking the product with the mark "Patent Pending."\textsuperscript{182} An inventor who fails to file an application, and consequently fails to mark his product, theoretically leads the public to believe that his invention is available for the public's benefit.

In its early "on sale" and "public use" cases, the Supreme Court often focused on the policy of avoiding detrimental public reliance on pre-application disclosure. In \textit{Shaw v. Cooper},\textsuperscript{183} the court eloquently addressed the subject of the inventor's responsibility toward the public in this regard:

The patent law was designed for the public benefit, as well as for the benefit of inventors. For a valuable invention, the public, on the inventor's complying with certain conditions, give him, for a limited period, the profits arising from the sale of the thing invented. This holds out an inducement for the exercise of genius and skill in making discoveries which may be useful to society, and profitable to the discoverer. But it was not the intention of this law, to take from the public, that of which they were fairly in possession.

In the progress of society, the range of discoveries in the mechanic arts, in science, and in all things which promote the public convenience, as a matter of course, will be enlarged. This results from the aggregation of mind, and the diversity of talents and pursuits, which exist in every intelligent community. And it would be extremely impolitic to retard or embarrass this advance, by withdrawing from the public any useful invention or art, and making it a subject of private monopoly. . . .

No matter by what means an invention may be communicated to the public, before a patent is obtained; any acquiescence in the public use, by the inventor, will be an abandonment of his right. If the right were asserted by him who fraudulently obtained

\textsuperscript{181} See Note, supra note 32, at 733.

\textsuperscript{182} Notice to the public that the invention is patented by marking the invention with the word "Patented" and the number of the patent is encouraged by 35 U.S.C. § 287 (1982). Using the mark "Patent Pending," however, has no statutory basis and no legal effect except to subject the user of the mark to liability for false marking under 35 U.S.C. § 292(a) (1982) if a patent application is not in fact pending. Nevertheless, that mark is commonly employed to discourage potential infringers.

\textsuperscript{183} 32 U.S. (7 Pet.) 292 (1833).
it, perhaps no lapse of time could give it validity. But the public stand in an entirely different relation to the inventor.

The invention passes into the possession of innocent persons, who have no knowledge of the fraud, and at a considerable expense, perhaps, they appropriate it to their own use.\textsuperscript{154}

Similarly, in \textit{Consolidated Fruit-Jar Co. v. Wright},\textsuperscript{155} the Court considered a case in which the inventor delayed filing his patent application for eight years while the invention, a canning jar, became widely used. The Court, in observing that "[l]arge amounts of money must . . . have been invested in the business of making and selling . . . [these] jars by various persons,"\textsuperscript{156} explained the policy against detrimental public reliance as follows:

He who is silent when he should speak must be silent when he would speak, if he cannot do so without a violation of law and injustice to others.

The supineness of the patentee is unexplained and inexcusable. A principle akin to the doctrine of equitable estoppel applies.\textsuperscript{157}

Likewise, in \textit{Egbert v. Lippmann},\textsuperscript{158} the court invalidated a patent where "[t]he inventor slept on his rights for eleven years" and "[i]n the mean time, the invention had found its way into general, and almost universal, use."\textsuperscript{159}

These early cases involved proof of \textit{actual} reliance by the public on pre-application disclosures. The policy, however, applies to pre-application disclosures, regardless of the existence of actual reliance. It is the mere \textit{possibility} of detrimental reliance that must be avoided. That possibility will always arise from an inventor's use of an invention in a manner in which the invention is placed beyond his control, or from use by another not under injunction of secrecy to the inventor. Although not as clear-cut as these "public use" situations, commercialization of the invention may also violate the policy against detrimental public reliance to the extent that the commercialization places the invention beyond the inventor's control.

\textsuperscript{154} \textit{Id.} at 320.
\textsuperscript{155} 94 U.S. 92 (1876).
\textsuperscript{156} \textit{Id.} at 95-96.
\textsuperscript{157} \textit{Id.} at 96.
\textsuperscript{158} 104 U.S. 333 (1881).
\textsuperscript{159} \textit{Id.} at 337; \textit{see also} \textit{Andrews v. Hovey}, 124 U.S. 694, 709 (1888) (inventor waited five years before filing application for patent during which time invention used by others).
One form of pre-application use or commercialization that will not implicate the policy against detrimental public reliance is where the inventor discloses the invention to another under "injunction of secrecy." In other words, pre-application disclosure of an invention will implicate the policy unless, as recently phrased by the Federal Circuit, the inventor had "a legitimate expectation of privacy and of confidentiality." Such a disclosure does not place the "public" in possession of the invention.

It is often the case that a physical embodiment of an invention provides an enabling disclosure of how to make and use the invention and that any disclosure of such an embodiment, whether by commercialization or use, would convey the invention to the public. But an invention need not be reduced to practice for its unrestricted pre-application disclosure to cause detrimental public reliance. The touchstone of reliance is disclosure, and the legalistic notion of reduction to practice plays no role in determining whether an invention is potentially disclosed. The member of the public who understands and relies on a pre-reduction to practice disclosure cannot be denied protection solely because one of the elements of reduction to practice has not been established.

The invention need not be embodied in a physical or tangible form in order to provide an enabling disclosure. The inventor could simply describe his invention as part of his commercialization or disclosure. All that is necessary for such a disclosure is a conception by the inventor.

The inventor need not be convinced that his invention will work for its intended purpose in order to create public reliance on his unrestricted pre-application disclosure. Rather, it is the potential perception of the members of the public who gain a sufficient

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160 See Egbert, 104 U.S. at 336; see also Grain Processing Corp. v. American Maize-Pros. Co., 840 F.2d 902, 906, 5 U.S.P.Q.2d (BNA) 1788, 1791 (Fed. Cir. 1988) ("public use" under § 102(b) does not include use by person other than inventor who is under an "obligation of secrecy to the inventor" (quoting In re Smith, 714 F.2d 1127, 1134, 218 U.S.P.Q. (BNA) 976, 983 (Fed. Cir. 1983))).


162 The corollary of this principle is that an anticipatory prior art reference need only be enabling, not reduced to practice. See In re Paramesuar Sivaramakrishnan, 673 F.2d 1383, 1384-85, 213 U.S.P.Q. (BNA) 441, 442 (C.C.P.A. 1982); In re Borst, 345 F.2d 851, 855, 145 U.S.P.Q. (BNA) 554, 557 (C.C.P.A. 1965), cert. denied, 382 U.S. 973 (1968).

understanding that they might start making, using, or selling the invention that dictates whether the possibility of detrimental reliance will occur. Finally, the practicability or utility of the invention need not be demonstrated to those of ordinary skill in the art. Those misled by the inventor's pre-application disclosure may be of significantly higher skill in the art.

In short, the policy of avoiding detrimental public reliance is triggered by any unrestricted pre-application use or commercialization which places the invention beyond the control of the inventor, regardless of whether the invention is reduced to practice.

B. Policy Encouraging Early Patent Disclosures

"Early public disclosure is a linchpin of the patent system." Publication of patents promotes the progress of useful arts by contributing to the pool of public knowledge and stimulating further invention. The earlier an inventor files his patent application, the earlier the public will be able to obtain the information contained therein. At least theoretically, however, the sooner an inventor is compelled to file the application, the greater the possibility that its disclosure will be defective. Congress has struck a balance between the rights of the inventor and the public so that an inventor may delay filing his patent application for no more than one year after placing the invention on sale or in public use. Section 102(b) "presents a sort of statute of limitations, formerly two years, now one year, within which an inventor, even though he has made a patentable invention, must act on penalty of loss of his right to patent." In the seminal case of Pennock v. Dialogue, the Supreme Court explained the policy favoring early filing of patent applications as follows:

While one great object [of the patent laws] was, by holding out a reasonable reward to inventors, and giving them an exclusive right to their inventions for a limited period, to stimulate the efforts of genius; the main object was "to promote the progress of science and useful arts;" and this could be done best, by giving the public at large a right to make, construct, use, and vend the

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thing invented, at as early a period as possible; having a due regard to the rights of the inventor.\textsuperscript{167}

The policy encouraging early patent disclosures, which underlies both the "on sale" and "public use" bars, should not be construed, however, to compel the inventor to rush to the Patent Office prematurely. Thus, this policy should only be triggered when the inventor can satisfy the enabling disclosure requirement of 35 U.S.C. § 112. This section requires that the inventor be able to describe to one of ordinary skill in the art how to make and use the invention.

An inventor must have a conception of the invention to be able to provide an enabling disclosure. However, it is irrelevant whether the invention has been shown to one of ordinary skill in the art to work for its intended purpose. Similarly, it is irrelevant whether a physical embodiment of the invention has been constructed. Thus, implication of the policy favoring early filing of patent applications does not require reduction to practice.

C. Policy Against Pre-Application Commercial Exploitation

The third policy underlying the "on sale" and "public use" bars discourages the inventor's pre-application commercial exploitation of the invention. The Supreme Court has explained this policy as follows:

If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should for a long period of years retain the monopoly, and make, and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure; and then, and then only, when the danger of competition should force him to secure the exclusive right, he should be allowed to take out a patent, and thus exclude the public from any farther use than what should be derived under it during his fourteen years [the statutory period in existence at the time]; it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries.\textsuperscript{168}

\textsuperscript{167} Id. at 19.
\textsuperscript{168} Id. In another early case, Shaw v. Cooper, 32 U.S. (7 Pet.) 292 (1833), the Court somewhat overstated the policy against pre-application commercial exploitation: A term of fourteen years [now seventeen years] was deemed sufficient for the enjoyment of an exclusive right of an invention by the inventor; but if he may delay
The policy against pre-application commercial exploitation is, simply stated, to "prevent the commercial exploitation of an invention as a trade secret for more than 1 year" before filing a patent application.

The commercial activity said to trigger the "on sale" bar is often described as a "sale or offer to sell." Nevertheless, an activity with a commercial purpose can implicate the policy against commercialization and the "on sale" bar, without being a sale or offer to sell in the contract sense. For example, in General Electric Co. v. United States, 654 F.2d 55, 211 U.S.P.Q. (BNA) 867 (Ct. Cl. 1981) (en banc) (per curiam), the Court of Claims stated that an inventor must be prevented "from commercially exploiting the exclusivity of his invention substantially beyond the statutorily authorized 17-year period." Id. at 61, 211 U.S.P.Q. (BNA) at 873. In King Instrument Corp. v. Otari Corp., 767 F.2d 853, 226 U.S.P.Q. (BNA) 402 (Fed. Cir. 1985), cert. denied, 475 U.S. 1016 (1986), the Federal Circuit characterized the policy against commercial exploitation as "prohibiting an extension of the period for exploiting the invention." Id. at 860, 226 U.S.P.Q. (BNA) at 406. Similarly, in Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd., 731 F.2d 831, 221 U.S.P.Q. (BNA) 561 (Fed. Cir. 1984), the court stated that "[o]ne of the primary purposes of section 102(b) is to preclude commercial exploitation of an invention which has the effect of expanding the period of exclusive rights granted by the statute." Id. at 836, 221 U.S.P.Q. (BNA) at 565. None of these statements is quite correct. An inventor may exploit his invention indefinitely. Pre-application commercial exploitation in no way affects the period of an inventor's exploitation. Nor does pre-application commercial exploitation allow the inventor to commercially exploit "the exclusivity of his invention substantially beyond the statutorily authorized 17-year period." The only true exclusivity involved is supplied by the statutory rights of the patent grant, the term of which cannot be extended. However, it may be that, as a practical matter, pre-application commercialization allows de facto exclusivity simply due to the inventor's lead time in the marketplace, which can combine with the later 17-year de jure exclusivity for an effective period of exclusivity exceeding that permitted by statute.


171 An inventor's offer for sale of an article which embodies the claimed invention doubtless invokes the policy. But the inventor's offer to sell his rights in the invention does not. See Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1267, 229 U.S.P.Q. (BNA)
the trial court held that the "on sale" bar applied to a government contractor who showed its invention to representatives of the government even though that activity was not an "offer" in the contract sense. The government representatives had no authority to enter into a contract and the contractor could not make an "offer" except in response to a government request for proposals. Nevertheless, the activity was for a commercial purpose: "to induce [the government] to accept the [claimed invention] as [a] vital component of a flight control system which GE was anxious to develop."

The policy against commercial exploitation applies to the "public use" bar as well. A "public use" can be for commercial purposes. For example, the Supreme Court, in an early case, considered whether being paid to give lectures on an invention which was not yet patented invoked the policy against commercial exploitation and the public use bar. The Court held that it did.

Any form of commercial exploitation by the inventor before filing a patent application triggers the policy against pre-application commercial exploitation. This is true regardless of whether there has been any disclosure of the invention.


173 Id. at 276.

174 Id. at 277.

175 See, e.g., In re Smith, 714 F.2d 1127, 1135, 218 U.S.P.Q. (BNA) 976, 983 (Fed. Cir. 1983) (in-home testing of carpet deodorizer by consumers in order to gauge consumer interest held to violate "public use" bar).


177 Id. at 62.

Likewise, the policy against commercial exploitation may be triggered regardless of whether the invention has been shown to be one of ordinary skill to work for its intended purpose, and regardless of whether a physical embodiment of the invention has been constructed. Accordingly, implication of the policy against pre-application commercialization does not require reduction to practice.

D. Policies Favoring the Inventor

The statutory grace period is designed to promote the policy of giving an inventor a reasonable amount of time following sales activity to determine whether a patent is worthwhile. In TP Laboratories, Inc. v. Professional Positioners, Inc., the Federal Circuit identified an additional policy consideration favoring the inventor: "[A]llowing an inventor time to perfect his invention, by public testing ...." Similarly, in City of Elizabeth, the Supreme Court observed that "it is the interest of the public, as well as [the inventor], that the invention should be perfect and properly tested, before a patent is granted for it."

The commentary that acted as the wellspring for the court's policy analysis extracted from this second policy favoring the inventor a strict requirement: the invention must be fully completed before any selling activity will raise a bar. That commentary constructed the completion "requirement" from snippets of legislative history accompanying the act creating the "on sale" and "public use" bars in 1836, as well as from the legislative history accompanying the 1939 revisions to the statutory bars.

In the Senate Report accompanying the 1836 Act, Congress recognized:

The first conceptions of ingenuity, like the first suggestions of sci-

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161 U.S.P.Q. (BNA) 321 (6th Cir. 1969), the court stated:

The policy behind [the "on sale" bar] is to prevent an inventor from holding back the secrets of his invention, while at the same time exploiting them, and thereafter applying for a limited monopoly when faced with competition, thus delaying the time when the invention becomes freely available to the public.

Id. at 997, 155 U.S.P.Q. (BNA) at 215.


181 Id. at 968, 220 U.S.P.Q. (BNA) at 580.

182 97 U.S. 126, 137 (1878).

183 See Note, supra note 32, at 735.
ence, are theories which require something of experiment and practical exemplification to perfect. Mechanical inventions are at first necessarily crude and incomplete. Time is required to develop their imperfections and to make the improvements necessary to their adaptation to practical uses.\textsuperscript{184}

Both the Senate and House reports to the 1939 Act also recognized that "[t]he law . . . permits an inventor, after his invention is fully completed, to make the invention known to the public for a period of two years before filing his application for a patent."\textsuperscript{185}

Additionally, the commentary suggested that the public interest favors encouraging the inventor to file his patent application\textit{ only} when the invention is complete.\textsuperscript{186} Such a premise is simply wrong. As noted above, none of the policies favoring the public requires that an invention be reduced to practice. There is no need for the inventor to reduce his invention to practice before filing a patent application. The considerations discussed by Congress in the 1836 Senate report gave rise to the one-year grace period, and did not establish a reduction to practice requirement for application of the statutory bars. Nor did Congress enact a reduction to practice requirement by its assessment of the case law in 1939.

In short, neither the legislative history of the "on sale" or "public use" bars, nor the policies underlying the bars, establishes a\textit{ requirement} that the invention be reduced to practice before the bars can be triggered. It is undoubtedly in the public interest to allow inventors time to reduce their inventions to practice before applying for a patent. It is in furtherance of this interest that an inventor's activities undertaken to reduce his invention to practice are shielded from application of the bars. The mere absence, however, of a reduction to practice will not protect an inventor from the bars if his activities are motivated by a desire other than to reduce the invention to practice. Such activities do not further the policy favoring giving the inventor time to reduce his invention to practice.\textsuperscript{187} The policy giving the inventor time to reduce his inven-

\begin{footnotes}
\footnotetext[184]{S. Rep. No. 388, 24th Cong., 1st Sess. 6 (1836).}
\footnotetext[186]{See Note, supra note 32, at 735.}
\footnotetext[187]{One issue involved in balancing the policy favoring allowing the inventor time to reduce the invention to practice with that against pre-application commercialization is how closely must an activity be tied to the furtherance of the policy favoring the inventor in order to outweigh the policy favoring the public. For example, if an inventor sells an embodiment of an invention to another so that the other may use it and enable the invention's}
\end{footnotes}
tion to practice is furthered only by activities undertaken to reduce the invention to practice.

E. The Policy Balance

If any one of the policies favoring the public is implicated, the relevant bar will attach unless countered by one of the policies favoring the inventor. Thus, any unrestricted pre-application use in which the invention passes beyond the inventor's control, or any pre-application commercialization of the invention, will raise a bar unless the activity was undertaken less than a year before filing or for the purpose of reducing the invention to practice.

If an activity implicates one of the policies favoring the public, but was performed to reduce the invention to practice, it is deemed an experimental use and the bars do not apply. Of course, once an invention has been reduced to practice, a commercialization or use of that invention can no longer be for the purpose of reducing it to practice.

This is not to say that these principles answer every question relating to the "on sale" and "public use" bars. Indeed some questions, such as whether reduction to practice should be a requirement for the "public use" bar, even though rejected in the "on sale" context, as well as whether reduction to practice should be required for application of the bars to activities of third parties unrelated to the inventor, have lingered.

1. The On Sale/Public Use Dichotomy

Commentators, most notably Professor Kayton, have argued that reduction to practice, the sale is considered experimental as long as any profit motive is, at most, merely incidental to the motive of reducing the invention to practice. What if the sale was motivated solely by profit, but the profit was intended to be used, in whole or in part, to fund experiments to reduce the invention to practice? At least one commentator is of the view that the purpose behind the profit motive renders the activity experimental. See Note, supra note 32, at 744-45.

A related problem occurs when the inventor seeks "developmental assistance." In Marvin Glass & Associates v. Sears, Roebuck & Co., 318 F. Supp. 1089, 167 U.S.P.Q. (BNA) 33 (S.D. Tex. 1970), aff'd in part, remanded in part, 448 F.2d 60, 171 U.S.P.Q. (BNA) 263 (5th Cir. 1971), an inventor's unsuccessful attempts to interest manufacturers in developing her invention were held not to be barring commercial activities, but mere attempts to secure developmental assistance. See id. at 1102, 167 U.S.P.Q. (BNA) at 43-44.

that reduction to practice is a requirement for the "public use" bar, but not the "on sale" bar. Indeed, the Federal Circuit expressly limited its *UMC Electronics* holding to the "on sale" bar, cautioning that "the public use bar . . . implicates different considerations." Professor Kayton reasons that an inventor who offers his invention for sale should be estopped from arguing that it was not then complete in order to avoid fraud on the buyer. On the other hand, an inventor who has used his invention in public has made no such representation. The "public use" bar, according to Professor Kayton, only applies to "inventions" placed in public use.

Professor Kayton's "plain language" analysis of the "public use" bar applies equally to the "on sale" bar and provides no basis for distinguishing between the two. Moreover, none of the policies underlying the "on sale" bar are in any way furthered by estopping an inventor by his representations or by preventing fraud on purchasers. Finally, experimental "use" negates the "on sale" bar as well as the "public use" bar.

Notwithstanding the analytical flaws in Professor Kayton's theory, it raises an interesting point. An "on sale" bar situation will always involve commercial activities and, thus, will always implicate this policy against pre-application commercialization. On the other hand, a public use may not. This is the primary difference between the two as far as the underlying policies are concerned.

A public use, however, may be for commercial purposes, as was demonstrated by the Federal Circuit's holding in *In re Smith.* More importantly, however, a public use may implicate either of the other two policies favoring the public without implicating any of the policies favoring the inventor—even though the invention has not been reduced to practice. For example, the public use of a device embodying what the inventor later reduces to practice as his invention can trigger the policy against detrimental public reliance. Because the policies underlying the "public use" bar can be violated even though the invention has not been re-

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189 I. Kayton, *Patents* 4-12—4-17 (1985).
192 *Id.* at 4-14.
duced to practice, reduction to practice should not be a require-
ment for application of the "public use" bar.

2. Activities of an Unrelated Third Party

In many cases, activities of an unrelated third party are
treated the same as activities of the inventor. For example, in
Kinzenbaw v. Deere & Co., the Federal Circuit affirmed a find-
ing of "public use" even though based upon the secret commercial
testing of later-patented farm equipment by farmer-customers.
The policies against pre-application commercialization and detri-
mental public reliance, as well as those favoring early public disclo-
sure, were all violated. Likewise, a third party's secret sales or of-
ers for sale of the claimed invention are subject to the "on sale"
bar. However, this is so only because the policy against detrimental
public reliance is violated. In other cases, an unrelated third party's activities are treated
differently from those of the inventor. For example, the Federal
Circuit has held an inventor's sale of a product secretly made by a
later-patented process subject to the "on sale" bar. Although the
policies against pre-application commercialization and favoring
early disclosure are violated, the policy against detrimental public
reliance is not. Thus, the Federal Circuit has held that third party
sales of products secretly made by the subject process—to which
the policies against pre-application commercialization and favoring
early disclosure do not apply—do not raise either a "public use" or
"on sale" bar to the inventor's patent. To invoke either bar, the
activity of a third party must be capable of informing the public of
the later-claimed invention. That is, to raise either bar, a third
party's activities must place the invention beyond that third
party's control so as to violate the policy against detrimental pub-

194 741 F.2d 383, 222 U.S.P.Q. (BNA) 929 (Fed. Cir. 1984), cert. denied, 470 U.S. 1004
(1985).
195 As the Federal Circuit explained in J.A. LaPorte, Inc. v. Norfolk Dredging Co., the
purchaser or offeree is a member of the "public" who may detrimentally rely. See 787 F.2d
(BNA) 13, 16 (Fed. Cir. 1983); see also Metallizing Eng'g Co. v. Kenyon Bearing & Auto
Parts Co., 153 F.2d 516, 518, 68 U.S.P.Q. (BNA) 54, 57 (2d Cir.) ("public use" bar), cert.
denied, 328 U.S. 840 (1946).
303, 310 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984); Gillman v. Stern, 114 F.2d 28,
lic reliance.

Even during the period when the lower courts accepted reduction to practice as a requirement for application of the "on sale" and "public use" bars, courts and commentators suggested that the requirement was inapplicable when the bar was raised by third-party activities. One post-UMC Electronics commentator, Robert Garrett, asserts just the opposite: that reduction to practice is required only for application of the "on sale" bar to third party activities. He agrees with the early cases and commentators that third-party commercial activities do not frustrate the policies underlying the "on sale" bar to the same degree as do the commercial activities of the inventor because the policies favoring prompt disclosure and prohibiting pre-application commercialization by the inventor do not apply. Garrett also recognizes that the policy of avoiding detrimental public reliance may be violated regardless of who performs the activity. He parts company with the case law and commentators, however, in his view that "[t]he policy permitting an inventor one year to test the commercial value of [his] invention . . . would . . . not be frustrated." The case law and other commentators take the position that that policy is either not served or inapplicable in the case of third party sales.

Garrett has identified an interesting question: do the bars apply to third-party activities which violate the policy against inviting detrimental public reliance, even though the inventor was diligently working towards reduction to practice? Although this question has yet to be answered, its answer does not depend on whether reduction to practice is a requirement of the bars. Rather, it depends on whether one party's motives can shield it from a statutory bar arising from the acts of another. Just as an inventor cannot rely on the experimental motive of a third party to excuse

188 See General Elec. Co. v. United States, 654 F.2d 55, 62 n.11, 211 U.S.P.Q. (BNA) 867, 874 n.11 (Ct. Cl. 1981) (en banc) (per curiam); I. KAYRON, supra note 189, at 4-16. Contra Pitlick, "On Sale" Activities of an Independent Third Party Inventor, Or—Whose Widget Is It?, 64 J. PAT. OFF. Soc'y 138, 155 (1982) (positing that policy against detrimental public reliance not applicable unless invention reduced to practice because "it is reasonable to require the public to make certain for itself whether the invention has been completed before it may be protected under the detrimental reliance policy umbrella").


200 See id. at 589.

201 See id.

202 See, e.g., General Elec., 654 F.2d at 62 n.11, 211 U.S.P.Q. (BNA) at 874 n.11.
otherwise barring activity, an inventor should not be able to re-
claim something dedicated to the public by someone else solely by
virtue of his own experimental intent. He is too late.

Applying the policies underlying the "on sale" and "public use" bars, it is clear that application of neither bar requires reduc-
tion to practice and that reduction to practice ends experimental
use. Any experimental use negating the bars must be for the pur-
pose of reducing the invention to practice.

VII. THE TESTS

The policies underlying the bars may be synthesized to refine
the Federal Circuit's tests for their application. The following tests
incorporate the policies and the analytical framework established
by the early Supreme Court cases.

To apply the "public use" bar, one need only apply the follow-
ing test:

1. Whether the proponent of unpatentability or invalidity has es-
established that the invention was used so that it passed beyond
the user's control or was used by one to whom the inventor dis-
closed the invention without injunction of secrecy before the criti-
cal date. If not, the "public use" bar is not implicated. If so, a
prima facie case of the "public use" bar has been made out and
the applicability of the bar depends on the answer to a second
question.
2. Whether the proponent of patentability or validity has estab-
lished that the inventor performed the activity for the purpose of
reducing the invention to practice. If so, the "public use" bar does
not apply because the use was experimental. If not, the "public
use" bar applies.

To apply the "on sale" bar, one need only apply the following
test:

1. Whether the proponent of unpatentability or invalidity has es-
established that the inventor sold, offered for sale, or in any other
way commercialized the claimed invention before the critical
date, or that an unrelated third party sold, offered for sale, or in
any other way commercialized the claimed invention before the
critical date, so as to risk informing the public of the invention. If

68, 71 (D.C. Cir. 1958).
not, the "on sale" bar is not implicated. If so, a prima facie case of the "on sale" bar has been made out, and the applicability of the bar depends on the answer to a second question.

2. Whether the proponent of patentability or validity has established that the inventor performed the activity for the purpose of reducing the invention to practice. If so, the "on sale" bar does not apply because the activity was experimental. If not, the "on sale" bar applies.

Of course, as with any "rule" derived as a compromise of competing policies, these tests must be applied in light of all the facts and circumstances of each case. This principle precludes application of the rules in a mechanical fashion and leaves room for factual analysis in light of the relevant policies.

CONCLUSION

The United States Supreme Court in its nineteenth century cases dealing with the "on sale" and "public use" bars applied a simple analytical framework. Application of the "on sale" and "public use" bars did not require that the invention be reduced to practice. An activity would be spared application of the bars if its purpose was experimental, i.e., for the purpose of reducing the invention to practice. The experimental use negation of the bars ended once the invention was reduced to practice.

After the Supreme Court stopped hearing cases dealing with the "on sale" and "public use" bars, the regional circuit courts of appeals and district courts strayed far from the Court's analytical framework, instituting a bright-line reduction to practice requirement for application of the bars. These courts frequently spoke of extending experimental use beyond reduction to practice, and treated experimental use as an exception to, rather than a negation of, the bars.

Soon after its creation in 1982, the Federal Circuit began to incrementally reject the regional circuits' approach. In 1984, the court ceased treating experimental use as an exception to the bars; and, in 1987, it rejected the notion that application of the "on sale" bar required reduction to practice. As the Federal Circuit's case law now stands, the court has diverged from the regional circuits' understanding of the bars, but has not yet fully embraced that of the Supreme Court's nineteenth century holdings. To do so, it would have to rule that reduction to practice is not required for application of the "public use" bar, that reduction to practice ends
experimental use, and that experimental use is confined to activities for the purpose of reducing the invention to practice. The Federal Circuit has, thus far, avoided expressly adopting these propositions, possibly because of its recognition that the bars are unsuited to the application of mechanical rules. Nevertheless, the policies underlying the bars establish these propositions as truisms.

Accepting these truisms, this Article has set forth refined versions of the Federal Circuit’s tests for application of the “on sale” and “public use” bars. These tests incorporate the analytical framework of the Supreme Court cases as well as the policies underlying the bars, the two wellsprings of the Federal Circuit’s “on sale” and “public use” analyses. Whenever questions of the “on sale” and “public use” bars are now presented, whether to lawyers or to courts, the factors of the problem lie before them, certain and intelligible, requiring only careful distinctions and accurate reasoning to attain impregnable results.