The Best Mode Disclosure Requirement In Patent Practice

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Best mode presents issues of unprecedented importance for the patent system. To resolve these issues, concepts in patent law must be interfaced with aspects of antitrust and trade secrecy law. In this article, Mr. Carlson presents a conservative approach to the resolution of best mode problems, together with a proposal for reform at the patent office level which would produce much-needed harmony with the courts.

Acting within the scope of the Congressional mandate to "promote the Progress of Science and the useful Arts,"[1] Congress has given to inventors a limited monopoly in the form of a right to exclude others from making, using or selling their inventions[2] in exchange for public disclosure sufficient to enable one skilled in the relevant art to practice the invention.[3] However, beyond such an "enabling disclosure" requirement, Congress has specified that the embodiment of the public

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1. U.S. CONST., art. I, § 8, cl. 8.

2. 35 U.S.C. § 154 (1970). Section 154 reads:

> Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, for the term of seventeen years, subject to the payment of issue fees as provided for in this title, of the right to exclude others from making, using, or selling the invention throughout the United States, referring to the specification for the particulars thereof. A copy of the specification and drawings shall be annexed to the patent and be a part thereof.

It is apparent that the patent grant is a "limited" monopoly as opposed to an absolute monopoly in view of the fixed seventeen year duration of the grant from the time the patent issues.

3. 35 U.S.C. § 112 (1970).

disclosure, the patent application, must describe the "best mode contemplated by the inventor in carrying out his invention."[4]

Until about 1960,[5] failure to satisfy the "best mode" disclosure requirement was seldom asserted as a defense to patent infringement. In 1965, a patent was held to be invalid for failure to comply with the best mode disclosure requirement,[6] thus setting the stage for significant changes in the practice of patent law. Today, the attorney must be aware of all aspects of the requirement in order to insure that the inventor will benefit from the rewards associated with the invention.

This article fully analyzes the best mode disclosure requirement. First, the public policy basis for the best mode disclosure requirement and the corresponding inventor and attorney obligations is explored. The relevant court decisions rendered during the last decade are discussed with emphasis on the most recent cases. The position of the Patent and Trademark Office on the best mode disclosure requirement is considered. Best mode is examined in the broader context of current patent conflicts. Illustrative examples of best mode problems are set forth and resolved. Finally the outlook for the future of the best mode disclosure requirement is determined.

I. PUBLIC POLICY BASIS AND IMPLICATIONS

The best mode disclosure requirement strikes a balance between the competing societal needs of encouraging invention by the grant of a limited monopoly and fostering free competition by preventing the misuse of the monopoly grant.[7] Assume, for the sake of argument, that the inventor discloses only the second-best means of carrying out the in-

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4. *Id.* The relevant portion of section 112, which contains both the "enabling disclosure" requirement and the "best mode" disclosure requirement, reads:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Id. It should be noted that the best mode requirement was originally established by Congress in 1870. Act of July 8, 1970, ch. 230, § 26, 16 Stat. 201. Although the determination of which of several modes is "best" is a subjective one, based on the state of mind of the inventor at the time of filing the patent application, commercial potential is often an objective measure of the best mode. Such factors as process efficiency, raw materials cost, process yield, process simplicity, and equipment cost would be important considerations in a best mode determination.

"Carrying out" and "practicing" an invention are terms of art. As used herein, they refer to the series of steps necessary to produce the invention. This series of steps is embodied in the patent application.

5. *See In re* Nelson, 280 F.2d 172 (C.C.P.A. 1960).

6. Flick-Reedy Corp. v. Hydro-Line Mfg. Co., 351 F.2d 546 (7th Cir. 1965), *cert. denied,* 383 U.S. 958 (1966).

7. Such misuse would result if the patent monopoly were unlawfully extended beyond the seventeen year statutory period.

vention in the patent application. If a patent were granted in this instance, the patentee would enjoy patent and trade secrecy protection[8] for the single invention. The best mode disclosure requirement effec-

8. A common law trade secret

> may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers.

RESTATEMENT OF TORTS § 757, Comment b (1939).

In contrast, the subject matter which is patentable is limited to a "process, machine, manufacture, or composition of matter or . . . improvement thereof," 35 U.S.C. § 101 (1970), which fulfills the conditions of novelty and utility as specified in 35 U.S.C. §§ 101 and 102, and nonobviousness as set forth in 35 U.S.C. § 103.

Section 101 states:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. § 101 (1970).

Section 102 states:

> A person shall be entitled to a patent unless —
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
> (b) the invention was patented or described in a printed publication in this or a foreign country or 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, or
> (c) he has abandoned the invention, or
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or . . .
> (f) he did not himself invent the subject matter sought to be patented, or
> (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 U.S.C. § 102 (Supp. V 1975).

Section 103 states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

35 U.S.C. § 103 (1970). Patent and trade secrecy protection are mutually exclusive, and the inventor or the corporate proprietor of the invention must choose one form of protection for a given invention. Trade secrecy protection can be elected for all of the following: (a) clearly patentable inventions that are not patented, (b) doubtfully patentable inventions, and (c) clearly unpatentable inventions. Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470 (1974). Patent misuse results, however, when the inventor or corporate proprietor of the invention attempts to enjoy the benefits of both forms of protection simultaneously for a single invention, and this can result if there is a deliberate withholding of the disclosure of the best mode from the patent application in contravention of 35 U.S.C. § 112.

tively obviates this problem by insuring that the most preferred means of carrying out the invention is disclosed in the patent application. Thus, it is wise from a public policy viewpoint that the inventor be required to set forth in the patent application the *best* mode for practicing the invention.

The burden of insuring that the substantive disclosure requirement has been satisfied falls jointly upon the inventor and the attorney. The inventor has the obligation of sufficiently informing the attorney who is writing the patent application as to the best mode of carrying out the invention so that the attorney can properly incorporate this information into the application. The standard for measuring the sufficiency of the information is that knowledge possessed by the inventor at the time of filing the patent application.[9] Thus, information relevant to best mode not known to the inventor at the time of filing is outside the scope of the disclosure requirement. In this regard, the inventor is at all times held to a good faith standard[10] in the role as applicant for a patent in order to preclude the concealment of any information within the inventor's knowledge that might have a bearing on full disclosure of the best mode.

The attorney has an affirmative duty to insure that the best means of practicing the invention has been incorporated into the patent application prior to filing. Such a duty requires that the attorney become thoroughly familiar with the invention and the inventor's thoughts regarding the best means, of carrying out the invention. From a procedural standpoint, in view of the time period between the inventor's written invention disclosure and the filing of the completed patent application, it is suggested that the attorney consult with the inventor just prior to filing the application in order to obtain a confirmation that the best mode has been included in the application. Of course, a timely filing of the application after receipt by the attorney of the invention disclosure will minimize the likelihood of changes in the best mode.

By way of illustration, assume that an inventor conceives of an invention on May 1, and reduces it to practice on May 15, using laboratory experiments. An invention disclosure detailing the conception and reduction to practice is completed by the inventor on May 20 and

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9. *See* note 4 *supra.*

10. The good faith standard requires honesty and candor as to both disclosures that relate to the invention and disclosures that have a bearing on relevant prior art. As is discussed below, a violation of the good faith standard that is tantamount to intentional fraud provides a basis for the assertion of an antitrust violation under the landmark Supreme Court case of Walker Process Equip., Inc. v. Food Mach. & Chem. Corp., 382 U.S. 172 (1975). *See* discussion p. 260 *infra.* In contrast, not only will an honest mistake by the inventor as to best mode not provide a basis for assertion of an antitrust violation under *Walker Process,* but also such a mistake will not provide a basis for a holding of patent invalidity, *see* note 35 *infra.*

received by the attorney on June 1. The attorney consults with the inventor and is assured that the project report includes a best mode example. The attorney completes the preparation of a patent application containing the best mode example on August 15 and arranges a conference with the inventor the following day for the signing of the inventor's declaration.[11] At the conference, another best mode check is made, this time in order to determine whether a better means of practicing the invention has been devised by the inventor during the period from the writing of the invention disclosure (May 20) to date (August 16). Such an improvement might result, for example, from additional experimental work conducted by the inventor for the purpose of removing flaws from the invention prior to scale-up from the laboratory to the production plant and subsequent commercial production.[12]

By the above procedure, the attorney can preclude the successful assertion of best mode as a defense to patent infringement. In other words, the attorney can assure that the patent owner will not lose the right to enforce the patent against infringers for failure to disclose best mode.

II. INTERPLAY WITH ANTITRUST LAW AND TRADE SECRECY

A. Antitrust Law

There is an apparent conflict between the public policy objective of free competition in the marketplace and the goal of protecting the proprietary interests of the inventor. Antitrust laws such as the Sherman Act[13] and the Clayton Act,[14] and supplements to antitrust legislation such as the Federal Trade Commission Act,[15] seek to promote the

11. 35 U.S.C. § 115 (1970).

12. In actual practice, multiple informational exchanges between the attorney and the inventor and re-drafting of the application are usually necessary. In this respect, the illustration in the text is simplified.

13. Sherman Act, 15 U.S.C. §§ 1-7 (1970). Section 1 states: "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade of commerce among the several States, or with foreign nations is declared to be illegal. . . ." *Id.* Section 2 states: "Every person who shall monopolize, or attempt to monopolize, or combine with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor. . . ." *Id.*

14. Clayton Act, 15 U.S.C. §§ 12-27 (1970). Although there is considerable overlap, the Clayton Act is generally more specific in its prohibitions than is the Sherman Act. The provision related to patents is section 3 of the Clayton Act, 15 U.S.C. § 14 (1970). Section 3 states:

> It shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods . . . whether patented or unpatented, for use, consumption, or resale within the United States . . . or fix a price charged therefor . . . where the effect of such lease, sale, or contract . . . may be to substantially lessen competition or tend to create a monopoly in any line of commerce.

Id.

15. 15 U.S.C. §§ 41-58 (1970). This act broadly prohibits unfair and deceptive trade practices and unfair competition.

former objective, while the patent statutes are directed toward the latter.[16] Absent best mode, such a dichotomy would operate in full force: the inventor could secure statutory patent protection by means of a second-rate public disclosure in the patent, thereby preventing others from practicing the invention. The best mode disclosure requirement resolves apparent patent monopoly/free competition conflict by providing a touchstone[17] for competitors who might seek to improve upon the method set forth by the inventor in his or her filing.[18]

B. Trade Secrecy

As has been indicated above, the best mode disclosure requirement prevents the simultaneous enjoyment of both patent and trade secrecy protection for a single invention.[19] Without such regulation, the inventor (or corporate proprietor) would enjoy statutory patent protection for a seventeen year period[20] in exchange for disclosure of an inferior mode.[21] At the same time, the inventor would enjoy trade secrecy protection for a period of unlimited duration on the best mode. Since there is no preemption of state trade secrecy by the federal patent laws,[22] the result would likely be the demise of both systems of protection. In the presence of best mode, however, the conflict disappears and the inventor must elect one form of protection[23] or the other. In the instance where trade secrecy is chosen, the inventor has one year of use of a patentable invention under secrecy before there will be forfeiture of any right to patent protection.[24] Adherence to the best mode disclosure requirement, therefore, actually promotes competition by providing individual and corporate competitors with information of great commer-

16. There are clear personal property rights in a patent. 35 U.S.C. § 261 (1970). Section 261 states:

> Subject to the provisions of this title, patents shall have the attributes of personal property.
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> Applications for patent, patents, or any interest therein, shall be assignable in law by any person by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States.

17. *See* note 4 *supra* and accompanying text.

18. A competitor can in this manner obtain a patent on the new invention provided that it is patentably distinct from the original patent.

19. *See* note 8 *supra* and accompanying text.

20. 35 U.S.C. § 154 (1970).

21. What is being postulated here is the absence of the best mode disclosure requirement. In the face of the requirement, the inventor would not necessarily have his cake inasmuch as the failure to disclose best mode would, if discovered, provide a basis for a holding that the patent is invalid and unenforceable against an alleged infringer.

22. Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 491-92 (1974), *rev'g* 478 F.2d 1074 (6th Cir. 1973).

23. *Id.*

24. 35 U.S.C. § 102(b) (1970).

cial potential[25] that otherwise would no doubt be concealed under a trade secrecy agreement.[26]

Thus, one cannot enjoy both patent and trade secrecy protection for the elements of best mode prior to the filing date. However, improvements made after filing would be prime targets for trade secrecy protection. In light of this consideration, good corporate planning would militate in favor of an early filing after reduction to practice in order to maximize the amount of information (*e.g.*, pilot plant and full-scale processing information) that would be protectible under trade secrecy.

C. Enforcement

Further possibilities for the interplay among antitrust, trade secrecy and the best mode requirement are available in the area of enforcement. Under current law, an alleged infringer may challenge the validity of a patent on best mode grounds.[27] As a logical extension, equitable relief is presumably available on the theory of patent misuse when the patentee attempts to enforce patent rights while, at the same time, retaining protection for the best mode under trade secrecy. In such an instance, an alleged infringer can arguably go beyond asserting failure to disclose best mode as a defense and can raise an antitrust violation as a counterclaim.[28] For example, the alleged infringer might assert that the

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25. *See* note 4 *supra*.

26. Secrecy agreements are commonly used to preserve a trade secret. A typical secrecy agreement is given below:

> Company X and Company Y covenant and agree on behalf of their companies, officers, directors, employees and agents that each will maintain in strict confidence all technical information relating to Process A; with the proviso that each company is not precluded from disclosing information that was known to that company prior to the time of a disclosure by the other company.
> No license to any patents of Company X or Company Y is granted by virtue of the disclosures of said technical information pursuant to this agreement.
> This agreement shall terminate Z years from the date given below.
>
> _____
> Signature (Company X)
>
> _____
> Signature (Company Y)
>
> Agreed to this_____day of _____19____.

27. Statutory basis for asserting the defense for failure to comply with 35 U.S.C. § 112 is provided in 35 U.S.C. § 282 (1970).

28. To date there has been no case in which an antitrust counterclaim has been coupled with a best mode defense in an infringement suit. However, in the future such a defense should be recognized where the failure to disclose best mode rises to the level of an antitrust violation. If the counterclaim is based on section 2 of the Sherman Act, as would most probably be the case, all of the elements of at least one of the three types of monopoly offenses (*i.e.*, monopolization, attempt to monopolize or conspiracy to monopolize) would have to be proven. If the counterclaim is based

patentee's wrongful conduct amounted to an unreasonable restraint of trade in violation of section 1 of the Sherman Act[29] and/or a monopoly offense in violation of section 2 of the Sherman Act.[30] To sustain a cause of action for one of these antitrust violations, the defendant counterclaimant must prove all of the necessary elements of the offense, *i.e.* competitive injury resulting from the anticompetitive conduct proscribed by law. Proof of such an antitrust violation would give rise to the recovery of treble damages under section 4 of the Clayton Act.[31]

To date, defendants in infringement suits who have raised best mode as a defense appear to have done so, almost as an afterthought, in connection with other arguments such as anticipation by prior art or obviousness over prior art. However, since some circuit courts have been receptive to the best mode defense, as demonstrated by case law set forth below, it can be expected that defendants will be encouraged to use it more extensively in the future.

III. RECENT CASE LAW

A substantial body of case law concerning the meaning of the best mode requirement has developed at federal district court and the court of appeals levels during recent years. One significant piece of dictum suggested that the best mode requirement does not allow the inventor to disclose only the "second-best embodiment, retaining the best for himself."[32] In another case, the court addressed the public policy of requiring best mode disclosure in order to prevent the concealment of "preferred embodiments" of the invention.[33] These statements provided the foundation for the increased assertion of failure to disclose best mode as a defense to a suit for patent infringement.

In *Benger Laboratories Ltd. v. R.K. Laros Co.*,[34] the defendants asserted undisclosed best mode as a defense to patent infringement. The federal district court found that, at the time the patent application was filed, there was an active in-house dispute between the plaintiff's manufacturer and the inventor as to which of two methods of practicing the invention was preferred. In fact, the dispute was not settled until

on section 1 of the Sherman Act, it would be necessary to prove an *actual* unreasonable restraint of trade resulting from concerted action involving the patentee.

29. *See* note 13 *supra*.

30. *Id.*

31. 15 U.S.C. § 15 (1970).

32. *In re* Nelson, 280 F.2d 172, 184 (C.C.P.A. 1960).

33. *In re* Gay, 309 F.2d 769 (C.C.P.A. 1962). The court stated: "Manifestly, the sole purpose of this latter requirement [the best mode] is to restrain inventors from applying for patents while at the same time concealing from the public preferred embodiments of their inventions which they have in fact conceived." *Id.* at 772. *See also In re* Bosy, 360 F.2d 972 (C.C.P.A. 1966).

34. 209 F. Supp. 639 (E.D.Pa. 1962), *aff'd*, 317 F.2d 455 (3d Cir.), *cert. denied*, 375 U.S. 833 (1963).

two years after the patent application was filed. The court held that in view of the inventor's doubt as to which mode was better, the disclosure of one mode was sufficient to satisfy the disclosure requirement. The court pointed out two important factors regarding the best mode disclosure: (a) that there be disclosure of the best mode *known* to the inventor at the time of filing, and (b) that the inventor act in good faith in his patent disclosure.[35] The court of appeals affirmed, stating that there had been "sufficient disclosure, good faith and no concealment"[36] on the plaintiff's part.

In *Flick-Reedy Corp. v. Hydro-Line Mfg. Co.*,[37] patent invalidity was asserted as a defense to alleged patent infringement of two patents by Hydro-Line. The best mode issue was raised with respect to one of the patents which encompassed a sealing device for preventing the escape of fluid from pressurized hydraulic cylinders. The device employed a machined surface which had a sealing relationship with another surface "described in terms of 'absolute concentricity,' 'zero clearance' and a 'metal to metal contact . . . [which] performs the function of sealing against fluid leakage. . . .' "[38] The patent specification did not indicate how this machined surface was produced except by saying that a "special tool"[39] was used. The president of plaintiff's company indicated that plaintiff had elected to keep the "special tool" a trade secret and that one skilled in the relevant art would not know what was meant by the term "special tool."[40] In affirming the district court's holding that that patent was invalid for failure to disclose the best mode, the court of appeals stated that to accept the patent monopoly and withhold the full disclosure required by 35 U.S.C. § 112[41] is the "selfish desire" against which this section is directed.

35. *Id.* The District Court stated:

> A patentee must disclose the best method known to him to carry out the invention. Even if there is a better method, his failure to disclose it will not invalidate his patent if he does not know of it or if he does not appreciate that it is the best method. It is enough that he act in good faith in his patent disclosure. On the other hand, if he knows at the time the application is filed, of a better method to practice the invention and knows it for the best, it would make no difference whether or not he was the discoverer of that method.

Id. at 644.

36. 317 F.2d 455, 456 (3d Cir. 1963).

37. 351 F.2d 546 (7th Cir. 1965), *cert. denied,* 383 U.S. 958 (1966).

38. *Id.* at 550.

39. *Id.*

40. Flick-Reedy's president stated:

> Your Honor, there are times when you could apply for a patent, I believe, but the enforcement thereof, where it is a tool used for an exclusive purpose in a plant, the enforcement thereof would be most difficult, and you may try to keep the information of a secret nature. . . . This is what we elected to do.

Id.

Obviously, Flick-Reedy was attempting to enjoy patent protection and trade secrecy protection simultaneously. *See* note 8 *supra* and accompanying text.

41. *See* note 4 *supra.*

The difference in the court's holding in *Flick-Reedy* from that in *Benger* is attributable to the differences in (a) the inventor's conception of the best mode at the time of filing the patent application, and (b) the inventor's reason for non-disclosure. In *Benger,* where the inventor was not certain as to which of two modes was the best, the non-disclosure was apparently in good faith. The inventor in *Flick-Reedy,* however, knew what the best mode was and intentionally attempted to conceal it.

In *Engelhard Industries, Inc. v. Sel-Rex Corp.,*[42] plaintiff brought an action in federal district court for a declaratory judgment on the validity of defendant's patent, alleging: (a) insufficient disclosure,[43] (b) failure to particularly point out and distinctly claim the subject matter of the invention,[44] (c) anticipation[45] and (d) obviousness.[46] Although the best mode question was not expressly raised by the plaintiff, the court held that it was impliedly brought into issue by reference to the appropriate statutory section,[47] since laboratory experiments showed the product produced by the invention to be of poor quality. The court, relying on *Benger,*[48] ruled the patent invalid for failure to disclose the best method known by him at the time of filing. The district court also held the patent to be invalid on the basis of obviousness, and the court of appeals affirmed on that basis, without discussing best mode.

Another court went even further in extending the best mode disclosure requirement by holding a patent invalid for failure to disclose the "specific recipe" of a given composition, even though such a composition fell within the preferred ranges given in the patent application. In *Indiana General Corp. v. Krystinel Corp.,*[49] the invention, which related to ferrite materials, was disclosed in terms of broad ranges of the elements of the preferred composition, ranges which the federal district court found "extended beyond the area representing significant technological advancement."[50] The patent was held invalid for failure to disclose best mode, and this holding was affirmed by the court of appeals with no discussion of best mode.

The *Indiana General* decision demonstrates courts' concern that the public not be prevented from duplicating a patentee's most preferred form of the invention because of an obscure disclosure in the patent

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42. 253 F. Supp. 832 (D.N.J. 1966), *aff'd,* 384 F.2d 877 (3d Cir. 1967).
43. 35 U.S.C. § 112 (1970). *See* note 4 *supra.*
44. 35 U.S.C. § 112, para. 2 (1970).
45. 35 U.S.C. § 102(e) (1970). *See* note 8 *supra.*
46. 35 U.S.C. § 103 (1970). *See* note 8 *supra.*
47. 35 U.S.C. § 112 (1970).
48. 209 F. Supp. 639 (E.D.Pa. 1962), *aff'd,* 317 F.2d 455 (3d Cir.), *cert. denied,* 375 U.S. 833 (1963).
49. 297 F. Supp. 427 (S.D.N.Y. 1969), *aff'd,* 421 F.2d 1023 (2d Cir. 1970).
50. *Id.* at 439.

application, especially if such unclear disclosure is intentionally made in order to prevent discovery by the public of a product or process having commercial value.

The unclear disclosure problem was extended to unintentional failure to disclose in a more recent decision. In *Dale Electronics, Inc. v. R.C.L. Electronics,*[51] the court of appeals affirmed the district court's holding and stated the "unintentional obtuseness might be reason not to penalize someone; we do not see it as a reason for granting a seventeen year monopoly."[52]

The invention in *Dale Electronics* involved a beryllium oxide-core electrical resistor. The patentee knew at the time of filing, but did not disclose, that a commercial resin composition "Rogers RX 600" was a particularly preferred insulator for their resistors. After the district court's holding of invalidity for failure to disclose best mode, appellant filed to reissue the patent. In *In re Hay,*[54] the Court of Customs and Patent Appeals affirmed the rejection by the Board of Appeals of the Patent and Trademark Office of the reissue applications, holding that granting a reissue application would violate the "no new matter" clause in the relevant statutory provision.[55]

Two more recent decisions further delineate the limits of the best mode disclosure requirement with respect to the inventor's knowledge at the time of filing.

Union Carbide Corp. v. Borg-Warner Corp.[56] concerned a suit brought by Union Carbide in federal district court[57] for alleged patent infringement by Borg-Warner. The district court found in favor of the defendants, holding: (a) claim 1 of the patent in issue was invalid because the process disclosed had been anticipated by prior art[58] and was obvious[59] in view of prior art, and (b) the patent was invalid in its entirety for failure to disclose the best mode contemplated to carry out

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51. 488 F.2d 382 (1st Cir. 1973), *modifying* 356 F. Supp. 1117 (D.N.H. 1973).
52. *Id.* at 389.
53. 35 U.S.C. § 251 (1970). Section 251, para. 1 states:

Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the commissioner shall, on the surrender of such patent and the payment of fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.

54. 534 F.2d 917 (C.C.P.A.) *cert. denied,* 429 U.S. 977 (1976).
55. 35 U.S.C. § 251 (1970). *See* note 53 *supra.*
56. 550 F.2d 355 (6th Cir. 1977), *aff'g,* 430 F. Supp. 1 (N.D. Ohio 1975).
57. 430 F. Supp. 1 (N.D. Ohio 1975).
58. 35 U.S.C. § 102(e) (1970). *See* note 8 *supra.*
59. *Id.* § 103. *See* note 8 *supra.*

the invention.[60] The Court of Appeals for the Sixth Circuit affirmed on the basis of best mode.

Union Carbide's patent[61] contained process claims for the molding of foamed thermoplastic articles. The claimed process was carried out using an apparatus that was illustrated by a drawing and description given in the specification as containing, *inter alia,* an extruder and a valve.[62] The facts brought out at trial indicated that a specially designed extruder and an improved valve had been developed, subsequent to the reduction to practice but prior to the filing of the patent application, for use in a pilot plant installation. The court of appeals held that, since the undisclosed improved valve and the undisclosed specially designed extruder were part of the best mode contemplated by the inventor to carry out the invention at the time of filing the patent application, the failure to disclose best mode caused the patent to be invalid.

In *Lockheed Aircraft Corp. v. United States,*[63] Lockheed sought compensation from the United States for use of a patented radar device. Disclosure was made in the patent specification of a broad band height finding receiver and a range detection receiver for use in the

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60. *Id.* § 112. *See* note 4 *supra.*

61. U.S. Patent 3,268,637. Claim 1 of the patent reads:

> 1. Process for molding foamed thermoplastic articles which comprises the steps of
> (a) melting a mixture of a blowing agent and a foamable thermoplastic material in an extruder at a temperature above the foaming temperature of said blowing agent and at a pressure above the foaming pressure thereof;
> (b) extruding the resulting molten mixture into an expanding accumulation zone while maintaining said mixture therein in the molten state and at a pressure above the foaming pressure thereof;
> (c) establishing communication between said accumulation zone and a mold maintained at a pressure no greater than the foaming pressure of said molten mixture;
> (d) rapidly forcing said molten mixture from said accumulation zone into said mold whereby the pressure differential between said accumulation zone and said mold causes said mixture to rapidly expand in said mold.

Union Carbide Corp. v. Borg-Warner Corp., 550 F.2d 355, 356-57 (6th Cir. 1977).

62. *Id.* The extruder is referred to specifically in steps (a) and (b) of claim 1, and the valve is referred to generically in steps (c) and (d) of claim 1. Thus claim 1 defines a system including the specifically mentioned extruder, the valve disclosed in the specification, and any equivalents of the valve disclosed in the specification.

This author feels that no proper analogy can be drawn between the specially designed extruder and improved valve of the instant case and the "special tool" of *Flick-Reedy,* 351 F.2d 546 (7th Cir. 1965), *cert. denied,* 383 U.S. 958 (1966). Rather, the extruder and valve are analogous to the "improved equivalent" discussed in Lockheed Aircraft Corp. v. United States, 553 F.2d 69 (Ct. Cl. 1977), *modifying* 190 U.S.P.Q. 134 (Ct. Cl. 1976), in connection with pulse compression. That is, those of ordinary skill in the art would be able to design an "improved equivalent" extruder or valve if given the information that an extruder and valve are required in a given system, whereas one of ordinary skill in the art would have little knowledge of what is meant by the vague term "special tool." The difference in outcome between the instant case and *Lockheed Aircraft* appears to be attributable to the fact that the inventor in *Lockheed* was not "personally familiar" with pulse compression at the time of filing, whereas the Court in the instant case found evidence that the inventor was familiar with the improved valve and specially designed extruder.

63. 553 F.2d 69 (Ct. Cl. 1977), *modifying* 190 U.S.P.Q. 134 (Ct. Cl. 1976).

radar device,[64] and the issue was whether the patent was infringed by government radar equipment that used pulse compression for height and range detection.[65] The court concluded that there was equivalence of the devices within the system disclosed in claim 1 of Lockheed's patent, and held the United States was liable for compensation.[66] In addressing the best mode disclosure requirement, the court referred to *Jack Winter, Inc. v. Koratron Co.*,[67] asserting that the patentee need not disclose all conceivable modes for practicing the invention but only the mode considered to be best at the time of filing.[68]

It is clear that the courts recognize an obligation to disclose all pertinent information known by the inventor regarding best mode at the time of filing. Failure to disclose any such information, whether intentional or inadvertent, will result in a holding of patent invalidity if the patent is contested. However, the circuit courts do not agree as to what constitutes "pertinent" information. The courts appear to balance the equities on a case-by-case basis, often following lines of authority that are the opposite of those followed by other courts. The problem of conflicting decisions is compounded by the fact that the United States Supreme Court is loath to hear patent litigation, so that forum shopping will tend to continue in the best mode area.

IV. POSITION OF THE PATENT AND TRADEMARK OFFICE

The Patent and Trademark Office,[69] in its *ex parte* examination of applications for patentability, does not have access to the extensive

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64. Claim 1 of Lockheed's patent recited the elements of the radar device in "means plus function" terminology. For example, the disclosed broad band height finding receiver corresponded to the following recitation in claim 1:

> receiving means connecting with said antenna means and being responsive to the electromagnetic energy reflected by the remote object from two energy paths, one path being on a direct line of sight between the antenna means and the remote object and the other path being indirect from the object to the antenna means via a reflection off the surface of the earth, ...

Id. at 82. Likewise, the disclosed range detection receiver corresponded to the following recitation in claim 1: "means responsive to both the transmitted and received energy and providing an output representing the range of the remote object, ..."
Id.

65. In determining whether or not the pulse compression radar equipment infringed claim 1 of Lockheed's patent, the Court applied the "doctrine of equivalents" and concluded that pulse compression is the equivalent of the broad band height finding receiver and the range detection receiver within the "means plus function" terminology of claim 1. *Id.* at 82-83.

66. In order to be equivalents, the infringing device must perform substantially the same work in substantially the same manner to achieve substantially the same result. For a discussion of the "doctrine of equivalents," *see generally* Tektronix Inc. v. United States, 445 F.2d 323 (Ct. Cl. 1970).

67. 375 F. Supp. 1 (N.D. Cal. 1974).

68. *See* text accompanying note 4 *supra* and discussion p. 251 *supra*.

69. The Patent and Trademark Office is also referred to herein as "the Office."

discovery available in *inter partes* courtroom proceedings. In view of this fact, the current rule governing examiners is that "[o]ffice practice is to accept an operative example as sufficient to meet this requirement of the [s]tatute in the absence of information to the contrary."[70] The Board of Appeals has indicated that the Patent and Trademark Office does not currently inquire as to whether any mode "adequately disclosed" is the best mode.[71] Consequently, the presence of at least one working example in a patent application will result in a *prima facie* presumption that the best mode requirement has been satisfied. Furthermore, the absence of a working example does not remove, or in any way alter, this presumption.[72]

The patent office policy concerning best mode disclosure was obviously borne out of necessity. First, each examiner spends an average of only about seventeen hours on the examination of an application,[73] devoting half of that time to a prior art search, and therefore, no time exists for a best mode investigation. Second, the examiner does not have access to such information as laboratory notebooks and project reports that would have a bearing on the best mode issue. Third, the examiner has no laboratory in which to independently verify that the applicant's preferred embodiments of the invention produce the most effective result. Provided current office practice remains in force, patents will be granted on applications regardless of best mode requirements.

In the future, however, as the best mode defense becomes increasingly asserted in the courts, there will undoubtedly be an impetus to gain assurance of best mode compliance at the application stage. This can be obtained by requiring submission to the examiner of either evidence bearing on the best mode, such as laboratory notebooks and project reports, or an inventor's declaration of compliance. Considering the stringent time constraints under which examiners work,[74] the inventor's declaration is probably the most practical means of obtaining assurance of compliance. It could be implemented by a simple averment.[75] Naturally, a good faith standard would apply to such a statement.

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70. Manual of Pat. Examiner's Proc. § 608.01(h) (Rev. 44, Apr. 1975).

71. *In re* Brebner, 455 F.2d 1402 (C.C.P.A. 1972).

72. *In re* Honn, 364 F.2d 454 (C.C.P.A. 1966). The Board of Appeals stated: "Certainly the absence of a specific working example is not necessarily evidence that the best mode has not been disclosed, nor is the presence of one evidence that it has." *Id.* at 462.

73. Address by C. Marshall Dann, former Commissioner of Patents and Trademarks, Wichita Manufacturers Association, *quoted in* 254 PAT., T.M. & COPYRIGHT J. A-16 (BNA Nov. 20, 1975).

74. *See* Dann, *supra* note 73, and accompanying text.

75. An appropriate statement would be the following which is contained on all declaration filing forms pursuant to 37 C.F.R. 1.65: "that I acknowledge a duty to disclose the best mode for carrying out the invention of which I am aware."

The declaration requirement would have a positive effect on the patent system. First, the "double standard" that presently exists with respect to best mode between the application and validity stages would be eliminated, thus producing consistent application of the best mode clause of section112.[76] Second, the legal sanctions associated with a fraudulent declaration, as set forth below, would insure a strengthened presumption of validity[77] upon patent issuance. Third, a false declaration by the inventor would provide a basis for an allegation of fraudulent procurement of the patent and, hence, fraud on the Patent and Trademark Office. In this regard, a distinction must be made between intentional fraud and a good faith honest mistake or so-called "technical fraud." Under the rationale of *Walker Process Equipment, Inc. v. Food Machinery & Chemicals Corp.*,[78] a patent obtained by intentional fraud can be the basis both for a counterclaim for a declaratory judgment of patent invalidity and for a counterclaim of antitrust violation under section 2 of the Sherman Act.[79] As has been previously stated,[80] provided that monopolization or an attempt to monopolize under section 2 is established, the treble damage provisions of section 4 of the Clayton Act would be available. Instead of awaiting the filing of a threatened suit by the patentees in the instance where the patent has been obtained by intentional fraud, the injured party can bring an action for a declaratory judgment.[81]

V. A GREATER CONFLICT

The differences between the policies of the Patent and Trademark Office and those of the courts lead to unsatisfactory situations. A patent is granted on an application that does not satisfy the best mode requirement, and only after extended litigation and many thousands of dollars in legal fees is the patent ruled invalid. In this regard, however, best mode does not stand alone. It is part of a more pervasive problem, termed "the crisis of law in patents,"[82] which arises because patents are subjected to different standards in the courtroom than those used during the application stage. Furthermore, the standards vary among the courts. As a result, at least fifty percent of litigated patents are held in-

76. *See* notes 3 and 4 *supra.*
77. 35 U.S.C. § 282 (1970).
78. 382 U.S. 172 (1975).
79. 35 U.S.C. § 115 (970). *See* note 13 *supra.*
80. *See* discussion p. 253 *supra.*
81. 28 U.S.C. § 2201 (1970).
82. 1. KAYTON, *The Crisis of Law in Patents,* in PATENT PROPERTY: CASES AND READINGS 214 (5th ed. 1975). Professor Kayton discusses mainly differences in circuit court standards regarding the section 103 "nonobviousness" defense. However, the term is equally applicable to the different standards among the Office and the various circuit courts applied to best mode.

valid.[83] Considerable criticism,[84] of the patent system has been accompanied by numerous reform proposals.[85] Two are relevant to best mode. Under one plan, a National Court of Appeals - composed of judges having expertise in patent law and technology - would provide uniform application of the patent laws.[86] The second proposal suggests the use of *inter partes* proceedings to permit third party participation in validity determinations before the Patent and Trademark Office.[87] The suggested *inter partes* proceedings are mainly directed toward uncovering prior art not considered by the examiner or prior use or sale. Absent rather extensive discovery provisions, these proceedings would not be effective in uncovering best mode problems.

Although commentators have suggested that the patent bar is opposed to the implementation of any legislation that would strengthen the presumption of patent validity,[88] such assertions are of questionable merit. Rather, there seems to be no clear consensus within the bar as to the best means of strengthening the presumption without damaging the patent system as a whole.

VI. ILLUSTRATIVE EXAMPLES

In order to expand upon previously discussed case law, the following illustrative examples are offered.

Example A: Inventor A, employed by Company X, is involved in a heated dispute with Company X's manufacturer concerning which of two methods is better for practicing his invention. Will the disclosure of only the inventor's preferred method satisfy the disclosure requirement?

The answer according to *Benger*[89] is yes. However, this case cannot be relied upon with any degree of assurance today. In view of the trend toward the increasing assertion of disclosure requirements at the validity stage, good practice would require the disclosure of both methods. Extending this reasoning, the applicant should disclose in detail

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83. *See* Dann, *supra* note 73. This is a conservative estimate. Some commentators have suggested that as many as seventy percent of litigated patents are held invalid.

84. *See* remarks by Mr. Tom Arnold, American Patent Law Association Symposium: Improving the Patent System, Wash., D.C. (Oct. 20, 1972), *quoted in* AM. PAT. L. A. BULL. 662 (Oct.-Nov. 1972).

85. *See generally* Pegram, *Current Proposals for Inter-Partes Proceedings*, 4 AM. PAT. L.A.Q.J. 56, 66-76 (1976).

86. *Id.* at 59.

87. *Id.* at 66-76.

88. *See* remarks of Mr. Bernard Nash, Assistant Counsel for the Senate Subcommittee on Antitrust and Monopoly, Industrial Research Institute (Oct. 18, 1976), *quoted in* 301 PAT., T.M. & COPYRIGHT J. (BNA Oct. 28, 1976).

89. 209 F. Supp. 639 (E.D. Pa. 1962), *aff'd*, 317 F.2d 455 (3d Cir.), *cert. denied*, 375 U.S. 833 (1963).

elements of the invention that are considered to be "more desirable," "more preferred," or "most advantageous." If there is any doubt as to the significance of any particular element, disclosure should be made.

Example B: A patent owned by Company Y is declared invalid in district court for failure to satisfy the best mode disclosure requirement. May Company Y obtain a reissue patent on a reissue application that incorporates the inadvertently omitted material into the reissue application?

No. *In re Hay*[90] should control. Assume further that the patent does contain the best mode disclosure, but in the validity proceedings it is determined that an earlier filed application, upon which the patentee has relied for priority purposes under section 120,[91] did not satisfy the best mode requirement. Does the patentee have the benefit of the application for priority? Although no court has yet considered this question, the answer is probably negative, especially if the nondisclosure in the application was intentional.

Example C: Company Z owns a patent on a device. A part for the device is produced according to the specification using a "special tool." Company Z intended to retain trade secrecy protection for the "special tool," and therefore provided no description in the patent of the tool. Is the patent invalid for nondisclosure of best mode?

On the basis of *Flick-Reedy,*[92] an affirmative answer should be given. However, it should be noted that in *ITT Corp. v. Raychem Corp.,*[93] an opposite result is reached on a similar set of facts. Despite these opposing lines of authority, good practice requires that disclosure be made on any similar factual context. However, in the instance where the "special tool" is well-known by those skilled in the art to which the invention pertains, a brief description of the nature of the tool would suffice.

Example D: Inventor B is aware of certain apparatus improvements made in a pilot-plant scale-up of an invention on a process that was reduced to practice without the improvements. The improvements were made prior to the filing of the patent application, but they were not in-

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90. 534 F.2d 917 (C.C.P.A.), *cert. denied,* 429 U.S. 977 (1976).

91. 35 U.S.C. § 282 (1970).

92. 351 F.2d 546 (7th Cir. 1965), *cert. denied,* 383 U.S. (1966).

93. 538 F.2d 453 (1st Cir. 1976), *cert. denied,* 429 U.S. 886 (1977). This case concerned a patent on insulated wire. The argument of patent invalidity for non-disclosure of a compound used in the process of manufacturing the wire was rejected by the court of appeals because (a) the patent claims covered the wire itself and not the process of manufacture and (b) the resulting properties of the wire were unaffected by the use of the non-disclosed compound. The conflict of this holding with *Flick-Reedy,* 351 F.2d 546 (7th Cir. 1965), *cert. denied,* 383 U.S. 958 (1966), is apparent. This author believes the holding in *Flick-Reedy* to be the better result, since it compels full disclosure of all information closely related to a patented product that is likely to give the patent owner a competitive advantage in product manufacture over one who does not have such information.

cluded in the apparatus and process description provided in the patent application. Is the subsequently obtained patent invalid for failure to disclose best mode?

Union Carbide[94] indicates that the patent would be invalidated. The inventor must set forth all information relative to best mode known to her personally prior to the filing of the patent application. However, based upon *Lockheed,*[95] information not known to her personally need not be disclosed. As has been stated, although there is no clear-cut rule as to the requisite extent of disclosure, a common sense approach to the inventor's knowledge at the time of filing is suggested. Some commentators have taken a conservative position toward best mode compliance — a position that this author fully supports.[96] Others argue that section 112 should be construed narrowly in order to maximize the amount of information protectible under trade secrecy before the filing date.[97] For example, it has been suggested that section 112 "does not require a disclosure of the best mode of *making* the invention."[98] Using this reasoning, it is asserted that in the instance where the claimed invention encompasses a process, the apparatus employed therein would be a candidate for trade secrecy protection.[99] Such an assertion is untenable in view of *Union Carbide*[100] where it is pointed out in substance that a claimed process cannot be carried out in a vacuum but must employ *some* apparatus, and the preferred aspects of the apparatus constitute an inherent part of the best mode disclosure. Thus, an extremely conservative posture should be taken regarding the withholding of *any* element of best mode for trade secrecy purposes prior to the filing date.

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94. 550 F.2d 355 (6th Cir. 1977), *aff'g* 430 F. Supp. 1 (N.D. Ohio 1975).

95. 553 F.2d 69 (Ct. Cl. 1977), *modifying* 190 U.S.P.Q. 134 (Ct. Cl. 1976).

96. *See generally* McDougall, *The Courts Are Telling Us: 'Your Client's Best Mode Must Be Disclosed,'* 59 J. PAT. OFF. SOC'Y 321 (1977); Bjorge, *Editorial Epilogue,* 59 J. PAT. OFF. SOC'Y 336 (1977).

97. *See* Honeycutt, *Preserving Know-How and Trade Secrets While Complying with Section 112, Fifteenth Southwestern Patent Conference,* 1977 PAT. L. ANN. 205 (BENDER 1977). Professor Roger M. Milgrim, the leading authority on trade secrets, endorses an approach that would achieve compliance with the patent statute while maximizing trade secrecy retention. *See* remarks by Prof. Roger M. Milgrim, A.B.A. Section of Patent, Trademark and Copyright Law (August 8, 1977), *quoted in* 1977 PROC. A.B.A. SECTION PAT., T.M. & COPYRIGHT J. 131, 138-43 (1977).

98. Honeycutt, *supra* note 96, at 212. Mr. Honeycutt distinguishes between "make and use" in the enablement portion of section 112, on the one hand, and "carrying out" in the best mode portion. *Id.* at 211. This distinction, although novel, does not stand up to an analysis of the plain language of the statute. Clearly, best mode requires a disclosure of the series of steps necessary to produce the claimed invention, and this disclosure would correspond to "making" the invention.

99. *Id.* at 214.

100. *See* discussion pp. 256-57 *supra.* Mr. Honeycutt relies on a restrictive interpretation of case law, *see, e.g.,* ITT Corp. v. Raychem Corp., 538 F.2d 453 (1st Cir. 1976), that does not represent the prevailing view. In light of Union Carbide Corp. v. Borg-Warner Corp., 550 F.2d 355 (6th Cir. 1977), an extremely conservative position toward disclosure is in order.

VII. CONCLUSION

The district and circuit courts have indicated that they are increasingly willing to entertain the best mode defense. The present liberal federal discovery rules[101] will facilitate the use of that defense in the future. Coupled with the possibility of antitrust counterclaims,[102] the best mode defense raises the probability of a further weakening of an already feeble presumption of patent validity.[103]

The outlook for the future, however, is far from hopeless. Admittedly, there is a need for both increased attorney sensitivity to best mode issues at the application stage, and for reform at the patent office level. No longer can the office rely on the practice of accepting an operative example as sufficient to satisfy the best mode requirement.[104] Rather, the best mode and "enabling disclosure" requirements of section 112[105] are distinct entities that must be given separate consideration by the office. Aside from strengthening the presumption of validity,[106] patent office inquiry into best mode might help to reduce litigation where best mode is the only defense available to an alleged infringer.[107]

The author favors reform by the patent office at the application stage through the requirement of an inventor's declaration of best mode compliance. The declaration requirement would be relatively easy to implement and would place virtually no additional demand upon the examiner. Abuse of the declaration requirement by the applicant would carry stiff sanctions based on fraudulent procurement and possible antitrust violations. The adoption of such a requirement would contribute to the smoother operation of our incredibly complex, yet remarkably adaptive, system for protecting and encouraging invention.

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101. *See, e.g.*, FED. R. CIV. P. 26(b).

102. *See* discussion p. 253 *supra.*

103. *See* note 82 *supra and accompanying text.*

104. *See* discussion p. 259 *supra.*

105. *See* note 4 *supra.*

106. *See* discussion p. 260 *supra.*

107. In view of the Speedy Trial Act of 1974, 18 U.S.C. §§ 3152-3156, 3161-3174 (Supp. IV 1974), which has effectively forced civil litigation to the bottom of the district court calendar, such a reduction, however small, would save the parties time and considerable expense.