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Patenting Inventions That Embody Computer Programs Held as Trade Secrets—White Consolidated Industries v. Vega Servo-Control, 713 F.2d 788 (Fed. Cir. 1983)

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PATENTING INVENTIONS THAT EMBODY COMPUTER PROGRAMS HELD AS TRADE SECRETS—*White Consolidated Industries v. Vega Servo-Control*, 713 F.2d 788 (Fed. Cir. 1983).

An inventor develops a numerical control system that allows a computer program to control the complex operation of machine tools such as drill bits. One of the elements in the numerical control system is a trade secret available only from the inventor. The inventor would like to patent the system as a whole, but an inventor must generally disclose how the invention works in order to obtain a patent.¹ Must this inventor completely disclose how the trade secret works in order to obtain a patent on the whole system? The Federal Circuit Court of Appeals said “yes” in *White Consolidated Industries v. Vega Servo-Control*.²

In *White*,³ the undisclosed trade secret was a computer program called SPLIT, which translated instructional programs for operation of tools into a machine code that operated the tools. White had obtained a patent on the numerical control system in 1968 without disclosing the SPLIT program. Vega Servo-Control subsequently developed a system that performed functions similar to the White system. White sued Vega Servo-Control charging infringement of its patent. Vega Servo-Control successfully defended on the ground that White’s patent was invalid because White had not disclosed the SPLIT program or an alternative program that would operate the control system.⁴ The *White* court held that an inventor seeking a patent must disclose a trade secret if it is an essential component of the invention and there are no other alternative components available to the public at the time the patent application is filed.⁵

The *White* decision may affect many areas of scientific and technological advances. Medical researchers, mechanical engineers, and other in-

1. The Patent Act, 35 U.S.C. § 112 (1976), sets forth the disclosure requirements for patent applications:

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.

See also *infra* Part 1B.

2. 713 F.2d 788, 218 U.S.P.Q. (BNA) 961 (Fed. Cir. 1983).

3. *Id.*

4. The district court also found no infringement of the patent because the Vega Servo-Control devices performed the functions in a substantially different way. *Id.* at 788, 218 U.S.P.Q. at 961. In addition to the finding that the disclosure requirement was not met, the lower court also held the White patent invalid for failing to meet the best mode requirement of 35 U.S.C. § 112 (1976). *White*, 713 F.2d at 788, 218 U.S.P.Q. at 961.

5. *White*, 713 F.2d at 791, 218 U.S.P.Q. at 963.

ventors may all be discouraged from patenting useful inventions, if they have chosen trade secret protection for an essential component. Inventions that incorporate computer programs are the most obvious targets because computer programs are often protected as trade secrets,⁶ but the *White* holding may apply to any invention that incorporates a trade secret.

This Note first compares trade secret protection with patent protection and then evaluates the *White* court's resolution of the conflict between trade secret law and patent law. The Note concludes that the court's holding, though consistent with patent law, will unnecessarily deter public access to valuable information by discouraging inventors from patenting inventions with trade secret components. The Note then considers possible solutions to the dilemma faced by an inventor who wishes to patent an invention incorporating a trade secret. The Note also evaluates solutions the *White* court could have considered and analyzes copyright protection as an alternative to trade secret protection.

I. COMPARISON OF TRADE SECRET PROTECTION AND PATENT PROTECTION

A. *Trade Secret Protection*

Trade secret protection is available for 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."⁷ To qualify for trade secret protection, an invention must have been previously unknown to the public and be maintained in secrecy.⁸ If the process of creating an invention is not revealed by the invention itself, then the invention can be distributed to the public while the process is maintained as a trade secret.⁹

Common law protects an inventor from loss of a trade secret through unlawful appropriation, breach of confidential relationship, or breach of contract.¹⁰ The protection potentially lasts forever; it ends only if the trade secret is lawfully disclosed to the public as a whole or if it is inde-

6. See generally Iandiorio, *Protecting Software and Other Computer-Related Inventions and Innovations*, 26 BOSTON B.J., May 1982, at 22 (computer programs protected as trade secrets, but also by patents and copyrights); Rose, *Protection of Intellectual Property Rights in Computers and Computer Programs: Recent Developments*, 9 PEPPERDINE L. REV. 547, 563 (1982) (trade secret protection for computers and computer programs remains strong).

7. RESTATEMENT OF TORTS § 757 comment b (1939). This definition was cited with approval in *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475-76, 181 U.S.P.Q. (BNA) 673, 676 (1974).

8. 1 R. MILGRIM, TRADE SECRETS § 2.01, at 2-8 (1980).

9. *Id.* § 2.05[2].

10. *Id.* §§ 2-4.

Patenting Inventions that Embody Trade Secrets

pendently created and exposed by someone else.¹¹ Trade secret protection thus allows an inventor to keep an invention secret, but does not assure a permanent monopoly on the secret matter.¹²

An inventor may choose trade secret protection when an invention can easily be kept secret, when other types of protection are not available, or when the expected useful life of the invention is short. Trade secret protection is especially valuable in the high-technology fields where products are developed and replaced so quickly that inventors may not want to labor through the patent process.

B. Patent Protection

A patent granted through the United States Patent and Trademark Office gives an inventor a seventeen-year exclusive right to use and profit from an invention.¹³ The requirements for patent protection are more strict than those for trade secret protection; the invention must be novel, nonobvious, and useful.¹⁴ In addition, patent applications must contain a written description of the manner and process of making and using the invention in terms that will enable a skilled person to make and use the invention.¹⁵ This is known as the enablement requirement. The enablement requirement is intended to instruct others so that they can construct and use the invention once the patent terminates,¹⁶ to encourage others to experiment in areas not covered by the patent,¹⁷ and to discourage others from infringing the patent by providing a description of what the patent covers.¹⁸

Courts have not required full disclosure of all details of the invention if a person skilled in the pertinent art can make and use the particular invention without knowing all of the details for constructing each component.

11. Samuels & Samuels, *The Patentability of Computer-Related Inventions*, 6 CORP. L. REV. 144, 146 (1983). Trade secret protection may be lost if others can discover how to make the invention through their own independent efforts using reverse engineering, or if the marketing of the invention disclosed the secret. 1 R. MILGRIM, *supra* note 8, § 2.05[2].

12. ATTORNEY'S GUIDE TO THE LAW OF COMPETITIVE BUSINESS PRACTICES § 4.13 (A. Browne ed. 1981) [hereinafter cited as ATTORNEY'S GUIDE].

13. 35 U.S.C. § 154 (1976); *See, e.g.*, *Flick-Reedy Corp. v. Hydro-Line Mfg.*, 351 F.2d 546, 550-51, 146 U.S.P.Q. (BNA) 694, 697 (7th Cir.), *cert. denied*, 383 U.S. 958, 148 U.S.P.Q. (BNA) 771 (1965).

14. 35 U.S.C. §§ 101-103 (1976); *See* 1 D. CHISUM, PATENTS §§ 3-5 (1984).

15. *See* 35 U.S.C. § 112 (1976), reprinted in pertinent part *supra* note 1.

16. *See, e.g.*, *Stearn v. Superior Distrib. Co.*, 674 F.2d 539, 543-44, 215 U.S.P.Q. (BNA) 1089, 1092-93 (9th Cir. 1982).

17. *Coming Glass Works v. Anchor Hocking Glass Corp.*, 374 F.2d 473, 477, 153 U.S.P.Q. (BNA) 1, 4 (3d Cir.), *cert. denied*, 389 U.S. 826, 155 U.S.P.Q. (BNA) 767 (1967).

18. *Ellipse Corp. v. Ford Motor Co.*, 452 F.2d 163, 171 U.S.P.Q. (BNA) 513, 518 (7th Cir.), *cert. denied*, 406 U.S. 948, 173 U.S.P.Q. (BNA) 705 (1971).

The courts have accepted three alternatives to full disclosure. First, full disclosure is not required if the component is readily available to the public and it is identified by appropriate commercial characteristics.¹⁹ Second, courts have held that public depositories may be used to fulfill the enablement requirement when full disclosure is impossible.²⁰ The depository alternative to full disclosure gives control over the "secret" component to a disinterested third party who is contractually obligated to provide the public the physical access necessary for an enablement disclosure.²¹ Third, an enablement disclosure may occur when materials are referred to in generic terms.²²

C. *The Conflicts Between Trade Secret Policy and Patent Policy*

Though trade secret law and patent law both seek to stimulate invention, they conflict in how they achieve this goal.²³ Trade secret law promotes invention by allowing protection for inventions kept secret.²⁴ Patent law, in contrast, encourages invention by giving an inventor a seventeen-year exclusive right to an invention in exchange for public disclosure of the details of the invention.²⁵ Thus, the secrecy essential to trade secret protection is incompatible with patent protection.

19. See, e.g., *In re Comstock*, 481 F.2d 905, 178 U.S.P.Q. (BNA) 616 (C.C.P.A. 1973) (identification of computer solely by its proprietary name and number); *In re Metcalfe*, 410 F.2d 1378, 161 U.S.P.Q. (BNA) 789 (C.C.P.A. 1969) (identification of three alternative materials by type, manufacturer, and trademark); *In re Gebauer-Fuelnegg*, 121 F.2d 505, 50 U.S.P.Q. (BNA) 125 (C.C.P.A. 1941) (specification of materials by two trade names); *Leutzinger v. Ladd*, 222 F. Supp. 681, 139 U.S.P.Q. (BNA) 196 (D.D.C. 1963) (identification of waxes by trade names sold by others and by melting points).

20. This exception to full disclosure developed because a sufficient description of how to obtain a microorganism from nature cannot be given. *In re Argoudelis*, 434 F.2d 1390, 168 U.S.P.Q. (BNA) 99 (C.C.P.A. 1970). In *Argoudelis*, the applicant deposited a micro-organism with the United States Department of Agriculture. The agency contracted with the patentee to keep the culture in its permanent collection and to meet requests for the culture after the patent issued. *Id.* at 1390-91, 168 U.S.P.Q. at 100. See also *Feldman v. Aunstrup*, 517 F.2d 1351, 186 U.S.P.Q. (BNA) 108 (C.C.P.A.), cert. denied, 424 U.S. 912, 188 U.S.P.Q. (BNA) 720 (1975); *Ex parte Jackson*, 217 U.S.P.Q. (BNA) 804 (Pat. & Trademark Bd. App. 1982).

21. *In re Argoudelis*, 434 F.2d 1390, 1393, 168 U.S.P.Q. (BNA) 99, 102 (C.C.P.A. 1970).

22. *In re Coleman*, 472 F.2d 1062, 176 U.S.P.Q. (BNA) 522 (C.C.P.A. 1973); *In re Marzocchi*, 439 F.2d 220, 169 U.S.P.Q. (BNA) 367 (C.C.P.A. 1971). A generic term may be used if all of the substances falling under the generic category would be operative within the claimed invention. *Id.* at 223, 168 U.S.P.Q. at 369. For example, the term "polyethyleneamine" was found enabling because all chemicals within this category could be used in the invented process. *Id.*

23. 1 R. MILGRIM, *supra* note 8, § 2.06[1].

24. See *supra* Part IA.

25. See *supra* Part IB. In contrast to trade secret protection, the patent process may also be costly for certain inventions. Filing fees for some patent applications start at \$300. Issuance of the patent costs \$500, and maintenance fees are also charged. 3 D. CHISUM, *supra* note 14, § 11.02[1][d].

This policy conflict requires an inventor to choose between trade secret protection and patent protection.²⁶ If the inventor chooses patent protection, he or she must disclose all the details of the invention.²⁷ This makes trade secret protection impossible. If, on the other hand, the inventor chooses trade secret protection, the inventor may not be able to patent that trade secret because an inventor may not use an invention commercially or in public for more than one year prior to the patent application.²⁸

The United States Supreme Court has held that patent law does not preempt state trade secret law, and that conflicts between the two types of protection should be minimized whenever possible.²⁹ If a conflict between patent protection and trade secret protection occurs, however, patent protection should be encouraged over trade secret protection so that the public may benefit from the disclosed information.³⁰

II. THE *WHITE* DECISION

A. *Summary of the Opinion*

In *White Consolidated Industries v. Vega Servo-Control*,³¹ the patentee argued unsuccessfully that the enablement requirement had been met without full disclosure of the SPLIT program. First, the patentee argued that use of the words “a known translator . . . as for example SPLIT” in the specification constituted a sufficient description to make the disclo-

26. *Kewanee Oil Co. v. Bicron Corp.* 416 U.S. 470, 181 U.S.P.Q. (BNA) 673 (1974); ATTORNEY'S GUIDE, *supra* note 12, § 4.8.

27. 1 MILGRIM, *supra* note 8, § 2.06; ATTORNEY'S GUIDE, *supra* note 12, § 4.8. One may retain a trade secret until the patent issues because patent applications must be kept confidential by the Patent and Trademark Office. *See* 35 U.S.C. § 122 (1976).

28. 35 U.S.C. § 102 (1976). This limitation on public use of the invention prior to patenting comports with the requirement that the invention be novel. It also keeps an inventor from extending the time the invention is protected. *Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516, 520, 68 U.S.P.Q. (BNA) 54, 58 (2d Cir.), *cert. denied*, 328 U.S. 840, 69 U.S.P.Q. (BNA) 631 (1946). If an inventor could wait to patent an invention until someone else was threatening to patent a similar one, he or she could enjoy the years of trade secret protection in addition to the 17 years allowed by a patent. Allowing such action would retard the progress of science and invention by keeping information secret longer than Congress thought necessary when it limited patent protection to 17 years.

29. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 181 U.S.P.Q. (BNA) 673 (1974). Accordingly, a patent applicant uncertain about the patentability of an invention should not be deterred from pursuing patent protection for fear of losing trade secret protection during the application process. *In re Sarkar*, 575 F.2d 870, 197 U.S.P.Q. (BNA) 788 (C.C.P.A. 1978). In *Sarkar*, the inventor sought judicial review of a denial of a patent application. The court granted the inventor's motion to seal the record for in camera proceedings to preserve trade secret possibilities. *Id.* at 872, 197 U.S.P.Q. at 791.

30. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 490, 181 U.S.P.Q. (BNA) 673, 681 (1974).

31. 713 F.2d 788, 218 U.S.P.Q. (BNA) 961 (Fed. Cir. 1983).

sure enabling because other translators besides SPLIT were available at the time of the patent application filing date.³² The court rejected this argument because the specification failed to mention which other translators, if any, would be appropriate.³³ Moreover, compatibility of existing translators with the invention was not adequately proven or publicized until after the filing date,³⁴ and the amount of research that would have been required for someone to develop another appropriate translator would be unreasonable.³⁵

Second, the patentee argued that the availability of SPLIT made the disclosure enabling even though the program was only available through agreements with White.³⁶ The court rejected this argument because White, by controlling access to the unpatented component, SPLIT, might be able to extend its patent protection of the invention beyond the seventeen-year life allowed.³⁷

The court concluded that White should have disclosed the details of SPLIT or another language translator in full in the patent application.³⁸ Consequently, the court held that there was no infringement because White's patent was invalid.

B. *Analysis of the White Court's Rationale*

The *White* court properly held that the patentee had not met the enablement requirement under current patent law because the recognized exceptions to full disclosure³⁹ did not apply. The readily available materials alternative was not met because proven alternatives to SPLIT were not

32. White argued that other translators copied from SPLIT, such as ACTION and COMPACT, were available on the market and were known to those skilled in the art. *Id.* at 791, 218 U.S.P.Q. at 963.

33. *Id.* Evidence was presented that two translators, ACTION and COMPACT, were "take-offs" of SPLIT. The court found, however, that this evidence did not establish that one skilled in the art would know that they were suitable for use in the invention. Publication of their suitability after the filing date of the patent application was immaterial. *Id.*

34. *Id.*

35. No evidence was presented to show that one skilled in the art would be able to create or select an appropriate translator within a reasonable amount of time. *Id.*

36. *Id.* at 790-91, 218 U.S.P.Q. at 963. SPLIT was identified by trademark, vendor, and characteristics and was available to the public through purchaser agreements, Brief of the Appellant Cross-Appellee at 27, *White Consol. Indus. v. Vega Servo-Control*, 713 F.2d 788 (Fed. Cir. 1983), which may have required the purchaser to maintain the trade secret protection. Contractual agreements with secrecy requirements are a common means to protect the trade secrets when sold. 1 R. MILGRIM, *supra* note 8, § 3.05[3].

37. *White Consol. Indus. v. Vega Servo-Control*, 713 F.2d 788, 791, 218 U.S.P.Q. (BNA) 961, 963 (Fed. Cir. 1983).

38. *Id.*

39. See *supra* notes 19-22 and accompanying text.

clearly specified in the patent application.⁴⁰ The current availability of SPLIT itself did not satisfy the requirements of this exception because SPLIT was under the control of the patentee rather than a disinterested third party.

Although the *White* court's decision conformed to the patent policy of requiring disclosure, it discourages patenting. An inventor who tries to incorporate his or her own trade secret into a patentable invention must forego patent protection altogether or lose all protection on the trade secret component by disclosure through the patent process.⁴¹ If the component functions solely in the invented system, an inventor may be willing to disclose the trade secret because the system itself will be patented. If the component is more versatile, however, as it was in *White*,⁴² an inventor may wish to keep the component secret. The result in *White* thus will lead inventors to favor trade secret protection, thwarting public policy,⁴³ and thereby causing the public to lose access to valuable information.

An inventor also faces difficulties if he or she creates a patentable system that incorporates a trade secret licensed from another inventor. The system inventor certainly has no right to disclose another's trade secret. Applying the "rule of reason" test⁴⁴ to the particular situation, a court may or may not deem the inventor's disclosure enabling if it refers to

40. *But see infra* notes 60–63 and accompanying text for an argument that the court could have used a rule that determines the validity of an enabling disclosure from the date of the patent's issuance.

41. *See Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co.* 153 F.2d 516, 520, 68 U.S.P.Q. (BNA) 54, 58 (2d Cir.), *cert. denied*, 326 U.S. 840, 69 U.S.P.Q. (BNA) 631 (1946). For instance, the rules of the Patent Office, 37 C.F.R. § 1.96 (1983), dictate the manner of disclosure for computer programs. If a computer program in the specification is greater than 10 pages of printout, descriptions of the operation and content of computer programs are submitted on microfiche as part of the patent application and are kept on file at the Patent Office.

42. *White Consol. Indus. v. Vega Servo-Control*, 214 U.S.P.Q. (BNA) 796, 806 n.13 (S.D. Mich. 1982), *aff'd*, 713 F.2d 788, 218 U.S.P.Q. (BNA) 961 (Fed. Cir. 1983).

43. *Interpreting Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 181 U.S.P.Q. (BNA) 673 (1974), the Court of Customs and Patent Appeals explained that:

wherever possible, trade secret law and patent law should be administered in such manner that the former will not deter an inventor from seeking the benefit of the latter, because the public is *most* benefited by the early disclosure of the invention in consideration of the patent grant. If a patent applicant is unwilling to pursue his right to a patent at the risk of certain loss of trade secret protection, the two systems will conflict, the public will be deprived of knowledge of the invention in many cases, and inventors will be reluctant to bring unsettled legal questions of significant current interest before this court for resolution.

In re Sarkar, 575 F.2d 870, 872, 197 U.S.P.Q. (BNA) 788, 791 (C.C.P.A. 1978).

44. A rule of reason test must be applied to the facts of each case to determine whether a given identification of materials is enabling. *See, e.g., In re Metcalfe*, 410 F.2d 1378, 1382, 161 U.S.P.Q. (BNA) 789, 792 (C.C.P.A. 1969); *Leutzinger v. Ladd*, 222 F. Supp. 681, 683, 139 U.S.P.Q. (BNA) 196, 198 (D.D.C. 1963); *see also* cases cited *supra* notes 19–22 for examples of specifications that met the rule of reason test.

another's product by distinguishing characteristics only.⁴⁵ If the trade secret component is available on the market, the enablement requirement would arguably be fulfilled through the identification alternative to full disclosure because the trade secret would not be in the inventor's control. If the trade secret component is not available on the market, however, the inventor must either disclose another's trade secret or forego patent protection.

The *White* decision is particularly undesirable in view of the recent growth of computer technology. This technology challenges current patent law to make patenting an attractive form of protection and to cope with the speed of the emerging technological developments by providing appropriate protections for those who contribute to them. Inventors will inevitably question whether the cumbersome patent process should be used for rapid developments in computer technology when trade secret protection is available. Decisions like *White* increase the likelihood that inventors will choose trade secret protection.

III. POSSIBLE SOLUTIONS TO THE *WHITE* DILEMMA

If trade secret protection for a component is desirable or if it is the only protection available, the inventor should be permitted to meet the enablement requirement of patent law by an appropriate alternative to full disclosure. Alternatives which courts have already accepted⁴⁶ provide guidelines for determining what other alternatives to full disclosure might be permissible. Any alternative to full disclosure of a trade secret component in an otherwise patentable invention risks future unenablement.⁴⁷ This concern, however, can be overcome by the reasonableness or necessity of the alternative.⁴⁸

45. See *In re Comstock*, 481 F.2d 905, 909, 178 U.S.P.Q. (BNA) 616, 620 (C.C.P.A. 1973); *Leutzinger v. Ladd*, 222 F. Supp. 681, 683, 139 U.S.P.Q. (BNA) 196, 198 (D.D.C. 1963).

46. See *supra* notes 19-22 and accompanying text.

47. In the case of readily available components, enablement depends on the independent producers. If the manufacturers relied upon by the inventor go out of business, alter the product, or stop producing it, then the product may no longer be available, causing the disclosure to become unenabling. Because manufacturers of the necessary materials control their availability, the risk of future unenablement is a concern. 2 D. CHISUM, *supra* note 14, § 7.03[3][c].

48. Courts have deemed any risk too speculative to deny patent protection when the rule of reason test has been met. *In re Metcalfe*, 410 F.2d 1378, 1382, 161 U.S.P.Q. (BNA) 789, 792 (C.C.P.A. 1969) (even though unenablement may occur because a material specified in a patent "becomes unavailable due to a lack of raw materials, public disaster, or other occurrence not within the control of the patentee," this risk should not keep a patent from issuing); see also *In re Comstock*, 481 F.2d 905, 909, 178 U.S.P.Q. (BNA) 616, 620 (C.C.P.A. 1973) (versatility of the technical world to accommodate changes in availability of computer programs alleviates the risk that a particular program may be lost); *In re Coleman*, 472 F.2d 1062, 1064, 176 U.S.P.Q. (BNA) 522, 524

A. *Preferred Solutions*

1. *The Public Depository Alternative*

A version of the public depository alternative could be developed so that a disinterested third party would make the trade secret component available to the public. A depository scheme is particularly well-suited to computer programs. Some computer program owners have already suggested using escrow-type arrangements for negotiating with buyers of computer equipment who need assured access to a particular program.⁴⁹ Similar escrow “banks” could also accommodate inventors in the *White* situation. After the patent has issued, these banks could sell the program to the public for a reasonable price. Such a system would be most effective for those programs whose secrecy survives public distribution.⁵⁰ This system could also be effective for programs whose secrecy is maintained through contractual agreement with the user of the program. In any event, the contract with the escrow bank could incorporate any necessary instructions on maintaining the secrecy of the ideas underlying the component.

Any contract between a patentee and an “escrow” agent would presumably be under the scrutiny of the Patent Office. Prior to issuing the patent, the Patent Office would insure that the contract provided the necessary access for the duration of the patent and that the escrow agent was a disinterested third party. The Patent Office would also require that the public either have permanent access to the component or access to the component’s secret after the patent expires. To comply with this requirement, the patentee might contract with the escrow agent to have the component fully disclosed when the patent expires. The inventor might be willing to give up trade secret protection at that time if it is still in effect. Alternatively, if the component is a computer program, it could be deposited with the Patent Office at that time.⁵¹

(C.C.P.A. 1973); *In re Argoudelis*, 434 F.2d 1390, 1394, 168 U.S.P.Q. (BNA) 99, 103 (C.C.P.A. 1970).

49. See, e.g., Lewis, *A Custody Agreement for a Computer Source Code*, 29 PRAC. LAW. 59 (1983). For example, this type of arrangement gives the buyer of one program assurance that the program necessary to fix the purchased program will be available if the seller goes out of business and the buyer needs to correct a flaw discovered in the purchased program.

50. Programs can frequently be distributed in a form that does not disclose their ideas. Generally, a program inventor uses a source code program written in language understood by humans to create a new object code program (such as SPLIT) which cannot be understood by humans. The inventor will keep the source code program secret and allow others to use the new object code program. Without the source code program, it will be difficult, if not impossible, for anyone to discern how the new program was written. Telephone interview with David Gordon, Systems Analyst for Diamond Engineering Corporation (Mar. 6, 1984) (notes on file with the *Washington Law Review*).

51. See 37 C.F.R. § 1.96 (1983), discussed *supra* note 41.

An inventor in White's situation would likely agree to a depository arrangement, particularly if the program had previously been distributed to others. When an invention incorporates another's trade secret, the depository system would give the inventor more flexibility to patent the invention by allowing the inventor to contract with the trade secret owner to place the trade secret in a depository system. The trade secret owner would normally prefer the depository system to trade secret disclosure.

2. *The Licensing Alternative*

Licensing provides another alternative to full disclosure for those inventors whose inventions embody a trade secret. Before obtaining the patent, an inventor could agree to license the trade secret through a contract with the Patent Office to any person requesting it after the patent issues. A potential licensee would pay a reasonable royalty for the trade secret component. The licensee and the patentee should agree on the exact price of the component,⁵² but arbitration should be available if necessary.⁵³ Evidence that the patentee charged more than a reasonable price or limited access to the component would result in loss of the patent. As in the depository alternative, the inventor using the licensing alternative would have to assure the public permanent access to the component or its secret information upon expiration of the patent.⁵⁴

Though controversial, compulsory patent and trademark licensing occurs under copyright law⁵⁵ and under the Plant Variety Protection Act,⁵⁶ as well as in antitrust cases.⁵⁷ Compulsory licensing in these situations is

52. In *United States v. National Lead Co.*, the Supreme Court upheld a district court order that required the defendant in an antitrust action to license any existing or future patents in exchange for a reasonable royalty. 332 U.S. 319, 335, 73 U.S.P.Q. (BNA) 498, 503-04 (1947). In that situation, the Court relied on the defendants and licensees to negotiate the reasonable royalty. *Id.* at 348-49, 73 U.S.P.Q. at 509-10.

53. In *Eli Lilly & Co.*, in which compulsory licensing was required, the licensees were given the right to seek arbitration if no agreement with Lilly resulted. [1979-1983 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,612 (Apr. 29, 1980).

54. See *supra* note 51 and accompanying text.

55. For example, copyright law includes compulsory licensing of nondramatic musical works that have been distributed to the public with the permission of the copyright owner. 17 U.S.C. § 115 (1982). Anyone obtaining a compulsory license may be required to make royalty payments to the owner. *Id.* § 115(c).

56. The Act gives the Secretary of Agriculture the power to declare a "protected variety open to use on a basis of equitable remuneration to the owner" upon determination that such use is necessary for this country's food supply. 7 U.S.C. § 2404 (1982).

57. See Holmes, *Compulsory Patent and Trademark Licensing: A Framework for Analysis*, 12 LOY U. CHI L.J. 43 (1980). For an order involving trademarks, see, e.g., *Borden, Inc.*, [1976-1979 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,490 (Nov. 7, 1978) (FTC said it had the power to order compulsory licensing of Borden, Inc.'s "Real Lemon" trademark). For an order involving patents, see, e.g., *Eli Lilly & Co.*, [1979-1983 Transfer Binder] TRADE REG. REP. (CCH) ¶ 21,612

forced upon the patentee for an urgent public need. In the trade secret context, in contrast, the patentee would seek the licensing alternative in order to patent an invention, and the patentee as well as the public would benefit.

The licensing alternative may be preferable for those components that do not lend themselves to a depository system due to such factors as size, complexity, or volatile nature. The depository system, however, is preferable in all other situations because: (1) it puts the control of the component in the hands of a third party; (2) it does not require agreement between the buyer and seller; and (3) it assures the Patent Office that the component will be available to the public because the system is set up prior to issuance of the patent.

B. Solutions of Limited Scope and Acceptability

The depository and licensing alternatives would be preferable in most situations. Both of those alternatives, however, would probably require statutory enactment or close judicial scrutiny. The patentee and the *White* court could have adopted more limited solutions that may be useful in specific situations.

I. An Alternative for Rapidly Developing Technology

The language in *White*'s specification had called for a single pass translator "as for example SPLIT."⁵⁸ Commercial use of other programs like SPLIT and their suitability to the *White* invention became known shortly after the patent application date.⁵⁹ If the court had considered this information, it might have found that the enablement requirement had been satisfied prior to the patent's issuance. The court did not fully consider it⁶⁰ because the established rule requires an enablement disclosure to exist on the date the application is filed.⁶¹

The established rule, however, arose in a case where the patent had yet to be granted.⁶² If courts find a disclosure unenabling in an infringement case, like *White*, they should consider all information available before the

(Apr. 29, 1980) (FTC ordered compulsory patent licensing of insulin technology to restore competitive market).

58. *White Consol. Indus. v. Vega Servo-Control*, 713 F.2d 788, 791, 218 U.S.P.Q. (BNA) 961, 964 (Fed. Cir. 1983).

59. *Id.* at 791-92, 218 U.S.P.Q. at 963. See Brief of the Appellant Cross-Appellee at 22-24, *White*.

60. *White*, 713 F.2d at 791, 218 U.S.P.Q. at 964.

61. *In re Glass*, 492 F.2d 1228, 1232, 181 U.S.P.Q. (BNA) 31, 34 (C.C.P.A. 1974).

62. *Id.*

issuance date to determine if an enablement disclosure occurred before the patent issued.⁶³ When new technology develops rapidly, disclosures unenabling at the filing date may readily become enabling by the issuance date. Those who have already obtained patents should be able to maintain them if they can demonstrate that an enablement disclosure existed before the patent issued. To do otherwise invalidates patents with an enablement disclosure at the crucial time of issuance. This discourages inventors from choosing patent protection. If the Patent Office finds a disclosure unenabling before the patent issues, the filing date should still be used to judge disclosure because the applicant could presumably refile the application when the enablement disclosure could be satisfied.

In any case, the public must be assured that an enablement disclosure exists before a patent issues because the enablement disclosure is the benefit the public receives in exchange for the patent.⁶⁴ If there is a risk that an enablement disclosure might not have occurred, then disclosure should not be found. If the enablement disclosure could be thwarted in some way, the inventor would obtain a property right to the invention and the public would gain nothing in return. If, however, developing technology has created an enablement disclosure before the patent issues, the patent should be allowed to remain valid because the public has received assurance of the benefits from disclosure before the inventor received the patent rights.

2. *Expansion of the Readily Available Materials Alternative*

The *White* court could also have expanded the readily available materials alternative to include the situation where the trade secret is available to the public solely through purchase from the inventor. *White* had sold SPLIT programs to people in the United States and several foreign countries.⁶⁵ This demonstrates that the program was already, to some degree,

63. The disclosure requirement of § 112 functions to establish a date of invention as well as to assure public disclosure of the invention. 2 D. CHISUM, *supra* note 14, § 7.03[3][b]. If an application is found unenabling on the application date, but is found enabling prior to issuance, a court or the Patent Office may want to establish the date of invention as the date the disclosure actually became enabling.

In the public depository cases, it was only necessary that the disclosure be enabling at the time the patent issued. *Id.* See also *supra* note 20 and accompanying text. As long as the invention clearly has been established as of the date of the application, the fact that complete disclosure comes later, but prior to the issuance date of the patent, should not invalidate the patent. In the same manner as the public depository cases, an inventor with a trade secret component could assure disclosure by the issuance date through use of a public depository system or licensing agreement.

64. See cases cited *supra* notes 16–18.

65. Brief of the Appellant Cross-Appellee at 30, *White Consol. Indus. v. Vega Servo-Control*, 713 F.2d 788 (Fed. Cir. 1983). See *supra* note 50 for an explanation why distribution of a program such as SPLIT would not necessarily disclose how the program was written.

within the public domain and that White was willing to distribute the program. However, White's apparent control over the continued access to SPLIT would have allowed White to partially control the use of the patented invention.

By withholding the trade secret information, White could have theoretically extended the invention's protection past the expiration date of the patent.⁶⁶ Such a concern, however, may be insignificant in a case like *White*, where the trade secret is a component of a computer system. Computer technology develops so fast that alternatives are readily available within a short period of time.⁶⁷ In addition, the possibility that a computer system or program will continue to be useful and competitive for more than seventeen years is remote.⁶⁸ This alternative, however, still presents the same risk that the computer technology alternative presented.⁶⁹ Unless the Patent Office is assured that an enablement disclosure is made before it issues the patent, the public will not be guaranteed the disclosure information.

3. Copyright Protection

An inventor may choose copyright protection instead of trade secret protection for a component.⁷⁰ With the apparent expansion of copyright protection to operational computer programs as well as instructional programs,⁷¹ this protection should have greater significance in the future. Courts have not addressed whether an inventor who has incorporated a copyrighted component into a larger invention would be able to patent the invention without losing the copyright protection.

As long as the copyrighted information creates an enablement disclosure, the inventor should be able to patent the invention while keeping the

66. See *White*, 713 F.2d at 791, 218 U.S.P.Q. at 963.

67. See, e.g., *In re Comstock*, 481 F.2d 905, 909, 178 U.S.P.Q. (BNA) 616, 620 (C.C.P.A. 1973).

68. *Id.*

69. See cases cited *supra* notes 16–18 and text accompanying note 64.

70. Copyright protection covers original works that are fixed in a tangible medium of expression. 17 U.S.C. § 102 (1982). A copyright owner has an exclusive right to reproduce or copy the particular work for the life of the author plus 50 years. *Id.* § 302(a). At the owner's discretion, copies of the work may be registered with the United States Copyright Office. *Id.* § 408(a). Registration may be desirable because it is a prerequisite to any infringement suit the copyright owner wants to bring. *Id.* § 411. Registered material deposited with the Copyright Office is available to the public. *Id.* § 705.

71. See, e.g., *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1253–54, 219 U.S.P.Q. (BNA) 113, 124 (3d Cir. 1983). But see Chisum, *Copyright, Computer Programs and the Apple Cases: A Compromise Solution*, 9 EUR. INTEL. PROP. REV. 233 (1983) (discussion of the *Apple* case that proposes a limit to the copyright protection of operational programs and encourages patenting of these programs).

copyright protection.⁷² Disclosure does not destroy copyright protection as it does trade secret protection. Thus, the inventor does not face the dilemma of an inventor in White's situation, who has chosen trade secret protection for a component. Yet an inventor in White's situation may not consider copyright protection satisfactory for a computer program component. A copyrighted program might be easily altered and used by others without infringing the copyright because a copyright protects only the language of a program and the order of the instructions. Unlike trade secret law, a copyright would not protect the idea embodied in the program.⁷⁴

Moreover, copyright protection does not solve the problem of the inventor who has incorporated a trade secret owned by someone else into his or her invention. Because the inventor did not create the component, the inventor did not have the choice of protecting it by copyright rather

72. The issue of simultaneous patent and copyright protection has traditionally arisen with design patents. Design patents protect inventions of "new, original and ornamental design." 35 U.S.C. § 171 (1976); see also *Mazer v. Stein*, 347 U.S. 201, 217, 100 U.S.P.Q. (BNA) 325, 332-33 (1954). In contrast, a utility patent (the type of patent discussed in this article) protects inventions that perform a useful function. An originator of an article that is new, original, and ornamental and that is also a work of art can obtain either design patent or copyright protection, or both. Frijouf, *Simultaneous Copyright and Patent Protection*, 23 COPYRIGHT L. SYMP. (ASCAP) 99 (1977). See 1 D. CHISUM, *supra* note 14, § 1.04 (discussion of design patents and their relation to copyright protection).

An inventor therefore need not choose between design patent and copyright protection if the invention fits both categories. *In re Yardley*, 493 F.2d 1389, 181 U.S.P.Q. (BNA) 331 (C.C.P.A. 1974). Despite the overlapping subject matter, Congress did not provide for an election between the two protections. To require an election would be contrary to Congress's intent. *Id.* at 1395-96, 181 U.S.P.Q. at 335. Moreover, the two types of law offer different types of protection. A design patent protects the idea itself whereas a copyright protects the expression of the idea. *Mazer v. Stein*, 347 U.S. 201, 217-18, 100 U.S.P.Q. (BNA) 325, 333 (1954).

By analogy, the design patent-copyright cases support the idea that utility patent and copyright protection may be obtained for the same invention. In fact, the utility patent-copyright situation presents a stronger case for dual protection because copyright protection and patent protection for a computer program are distinct. The copyright protects only the language of the program and the order of the instructions, while the patent protects the idea or process behind the program. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1250-51, 219 U.S.P.Q. (BNA) 113, 122 (3d Cir. 1983). Because the types of protection are different, one type of protection should not extend the length of the other type. Thus, patent protection would cover the program's idea for 17 years, and copyright protection would cover the language and order of the instructions for the duration of the copyright.

73. If the component is a computer program, copyright owners need only register the first and last 25 pages of the program with the Copyright Office. 37 C.F.R. § 202.20(c)(2)(vii)(A) (1983). In such a case, the inventor should be required to meet the disclosure requirement by filing a complete copy of the program printout with the Patent Office or by depositing the complete program in microform with the Copyright Office. *Id.* § 202.20(c)(2)(vii).

74. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1251, 219 U.S.P.Q. (BNA) 113, 122 (3d Cir. 1983). In order to obtain more complete protection, an ambitious inventor might try to obtain simultaneous copyright and patent protection for a computer program. For a discussion that encourages adoption of a policy to allow simultaneous copyright and patent protection, see *supra* note 72.

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than as a trade secret. Still another shortcoming of the copyright alternative is that copyright protection may not be available for components of an invention that are not computer programs. Thus, an inventor who wishes to protect such a component may necessarily be limited to trade secret protection.

IV. CONCLUSION

Requiring disclosure of a trade secret to obtain a patent on a larger invention encourages trade secret protection over patent protection, contrary to federal patent law. When an inventor chooses trade secret protection, society loses the invaluable disclosure of new ideas. Thus, the precedent in *White* must be modified to encourage both patent protection and the free flow of technological and scientific information. A depository system for the secret component should be adopted as a disclosure alternative. If the depository system is impracticable, inventors should be permitted to meet the disclosure requirement by licensing the secret at a reasonable royalty to anyone who requests access to it. In addition, inventions that incorporate copyrighted components should also be patentable if copies are deposited with the Copyright Office and constitute an enablement disclosure. As long as an inventor makes some sort of enabling disclosure, the inventor should be allowed to patent an invention that embodies a trade secret component. To do so encourages inventors to patent their inventions rather than to keep them as trade secrets.

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