

NOTE

In re Baird: A New Approach to Obviousness of Chemical Compounds

INTRODUCTION

Imagine that you have just invented a new chemical compound that will work superbly as a glue. Your compound contains the chemicals X and Y. You are considering applying for a patent that would give you the exclusive right to make, use, or sell the compound for twenty years.¹ An associate informs you that a rival glue manufacturer has already obtained a patent on glue similar to your proposed glue. The rival's patent, however, is quite broad. It covers the combination of any two chemicals selected from a defined set of over a thousand chemicals. This defined set of chemicals includes the chemicals X and Y. What are your chances of getting a patent on your chemical compound?

To obtain a patent on your new chemical compound, the compound must have been "nonobvious" at the time you invented it.² That is, your compound must differ enough from previ-

¹ 35 U.S.C.A. § 154(a) (West Supp. 1995). Each patent shall contain the invention's title and a grant to the patentee of the right to prevent others from making, using, or selling the invention in the United States. *Id.* § 154(a)(1). If the invention is a process, the grant allows the patentee to prevent others from using or selling the products of that process in the United States. *Id.* The grant also allows the patentee to prevent others from importing the products into the United States. *Id.* The grant is valid for 20 years after the patent application's filing date, provided the inventor pays the requisite fees. *Id.* § 154(a)(2).

² 35 U.S.C. § 103 (1988). An inventor may not obtain a patent if the subject matter

ous inventions such that an ordinarily-skilled inventor in the same field would not have arrived at it.³ Traditionally, courts have presumed obviousness⁴ where a patented generic chemical formula⁵ encompasses the specific formula that an inventor seeks to patent.⁶ This essentially describes your situation, and therefore your chances for obtaining a patent may seem slight. In *In re Baird*,⁷ however, the Court of Appeals for the Federal Circuit diverged from the traditional approach to obviousness.⁸ The *Baird* court held that, to presume obviousness, a court must find that the generic formula “suggests” or “motivates” the selection of the specific compound.⁹ Thus, the *Baird* approach reduces the spectrum of compounds that a general chemical formula renders obvious and allows subsequent inventors to obtain patents on more specific formulae.¹⁰

This Note argues that the Federal Circuit took the correct step in *Baird* when it departed from the more mechanical ap-

was obvious at the time of invention to an ordinarily-skilled person in the field. *Id.* The differences between the invention’s subject matter and the prior art indicate whether the invention is obvious. *Id.* An invention may be unpatentable even if another inventor has not already disclosed or described the invention identically. *Id.*

³ See *infra* notes 42-47 and accompanying text (discussing determination of nonobviousness).

⁴ A “presumption of obviousness” is more accurately phrased a “prima facie case of obviousness.” 2 PETER D. ROSENBERG, PATENT LAW FUNDAMENTALS § 9.04[1] (2nd ed. 1995 rev.). In a prima facie case, the evidence not only points to a certain conclusion, but requires this conclusion unless the other party presents rebuttal evidence. BLACK’S LAW DICTIONARY 1190 (6th ed. 1990); see also *infra* note 57 and accompanying text (discussing prima facie obviousness).

⁵ A “generic chemical formula” is a chemical formula with variable substituents. *Rohm and Haas Co. v. Mobil Oil Corp.*, 718 F. Supp. 274, 290 (D. Del. 1989), *aff’d*, 895 F.2d 1421 (Fed. Cir. 1990). An example of a generic chemical formula is $C_nH_{2n}O$, where C, H, and O represent the chemical elements carbon, hydrogen, and oxygen, and n represents a whole number, such as one or two. Patricia E. Roberts, Comment, *Chemical Compounds Related As Genus and Species and the Patentability Requirement of Novelty*, 54 WASH. L. REV. 815, 815 n.2 (1979). This generic formula encompasses numerous specific formulae, such as CH_2O and C_2H_4O . *Id.*

⁶ See *infra* notes 74-91 and accompanying text (describing traditional approach to obviousness).

⁷ 16 F.3d 380 (Fed. Cir. 1994).

⁸ See *infra* notes 120-26 and accompanying text (describing *Baird* court’s departure from traditional approach to obviousness).

⁹ See *infra* notes 113-26 and accompanying text (presenting *Baird* approach to obviousness of chemical compounds).

¹⁰ See *infra* notes 123-25 and accompanying text (discussing *Baird*’s effect on scope of patents).

proach to obviousness that courts had previously applied in this context. Part I provides an overview of the United States patent system and the obviousness of chemical compounds. Part II discusses the *Baird* decision and the Patent and Trademark Office's response to the case. Finally, Part III analyzes the merits of *Baird* and concludes that the *Baird* approach is preferable to the traditional approach.

I. BACKGROUND

A. *Overview of the United States Patent System and the Nonobviousness Requirement*

The patent system involves a give-and-take relationship between the government and the inventor of a patentable invention. When the government issues a patent on an invention, it grants the inventor a limited monopoly.¹¹ For twenty years, the inventor has the right to exclude others from making, using, or selling the patented invention.¹² In return, the government secures a way to encourage invention and its public disclosure.¹³

To obtain a patent, the inventor submits an application¹⁴ to the Patent and Trademark Office (PTO)¹⁵ where a patent examiner reviews the application.¹⁶ The examiner first looks at

¹¹ 1 ROSENBERG, *supra* note 4, § 1.03. The United States Constitution authorizes Congress to grant inventors an exclusive right to their discoveries for a limited time. U.S. CONST. art. I, § 8, cl. 8. The Constitution intends such grants to promote the progress of the sciences. *Id.*

¹² 35 U.S.C.A. § 154(a). For a discussion of this statute, see *supra* note 1.

¹³ See 1 ROSENBERG, *supra* note 4, § 1.08 (explaining how patents encourage invention). Rosenberg argues that inventors are entitled to the material benefit of their work. 1 *id.* They will only spend the time and money involved in invention if they can expect compensation through future profits. 1 *id.*

¹⁴ 2 *id.* § 13.00. A complete patent application consists of an oath or declaration, a specification including the claim or claims, the required filing fee, and, when necessary, drawings. 2 *id.*

¹⁵ The Patent and Trademark Office (PTO) is an agency within the United States Department of Commerce. WHAT EVERYBODY SHOULD KNOW ABOUT PATENTS, TRADEMARKS AND COPYRIGHTS 1 (Donald M. Dible ed., 1978). The PTO grants patents, registers trademarks, aides other government agencies regarding patent matters, and encourages scientific and technical advances by preserving, classifying, and disseminating patent information. *Id.* In carrying out its role, the PTO examines patent and trademark applications and grants patents and trademarks accordingly. *Id.* Additionally, the PTO houses search files so that the public can examine existing patents and trademarks. *Id.*

¹⁶ 2 ROSENBERG, *supra* note 4, § 15.03.

the “claims,” which define the scope of the monopoly that the applicant hopes to obtain.¹⁷ The examiner compares the claims to the “prior art,” which consists of all patents, printed publications, public uses, and sales¹⁸ of pertinent subject matter that predate the invention.¹⁹ If the claims define a patentable advance over the prior art, the PTO will issue a patent.²⁰ If the examiner rejects the application, the applicant can appeal to the PTO Board of Patent Appeals and Interferences (the Board).²¹ The applicant has a further right of appeal to the Court of Appeals for the Federal Circuit²² or the District Court for the District of Columbia.²³

¹⁷ 1 *id.* § 1.01. Section 112 of the Patent Act defines the terms “specification” and “claims.” 35 U.S.C. § 112 (1988). The specification describes the invention, and how to make and use it. *Id.* This description must be complete and clear so that any person skilled in the pertinent art could make and use the invention. *Id.* The specification must also reveal the best mode of carrying out the invention. *Id.* Finally, the specification must conclude with one or more claims that identify precisely what the applicant regards as her invention. *Id.*

Thus, the term “specification” refers to the descriptive part of the application, but the specification technically includes the claims as well. 2 ROSENBERG, *supra* note 4, §13.04[6]. The descriptive part of the specification explains and describes the invention so any person skilled in the art could make and use it after the patent expires. 2 *id.* The claims serve the different purpose of informing the public of the limits of the monopoly. 2 *id.*

¹⁸ *In re Harry*, 333 F.2d 920, 923 (C.C.P.A. 1964). Prior art also includes a co-pending application that eventually becomes a patent. *Id.* at 923-24.

¹⁹ 2 ROSENBERG, *supra* note 4, § 9.02[2][a][i]. In determining pertinent subject matter, the courts presume knowledge of prior art both in the field of the inventor’s endeavor and in analogous arts. *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979). The *Wood* court set out a two-part test for determining whether an earlier patent, or other reference, belongs to an analogous art. *Id.* First, courts should evaluate whether the field of the earlier patent is the same as the field of the applicant’s endeavor. *Id.* If not, courts should ask whether the earlier patent is reasonably pertinent to the distinct problem the applicant is addressing. *Id.*

²⁰ 2 ROSENBERG, *supra* note 4, § 15.03[1], [6]. After the examiner issues a patent, an interested party can still attack the patent by bringing a suit for declaratory judgment of patent invalidity in a United States district court. 3 *id.* § 17.03. The Court of Appeals for the Federal Circuit hears appeals from United States district courts in such actions as well as in patent infringement suits. 2 *id.* § 15.04[2][a].

²¹ 2 *id.* § 15.03[1]. The Commissioner of Patents and Trademarks, the deputy commissioner, two assistant commissioners, and a maximum of fifteen examiners-in-chief make up the Board. 35 U.S.C. §§ 3, 7 (1988). The Commissioner designates three or more members of the Board to hear an appeal. 35 U.S.C. § 7. When the Commissioner deems it necessary, she may designate a patent examiner to serve as one of the examiners-in-chief. *Id.*

²² 2 ROSENBERG, *supra* note 4, § 15.04[2]. The United States Court of Customs & Patent Appeals had jurisdiction to hear appeals directly from the PTO prior to 1982, when the Court of Appeals for the Federal Circuit was created. 2 *id.* § 15.04[2][a].

²³ 2 *id.* § 15.04[2]. A party has a right to appeal a District Court for the District of

The PTO will only issue a patent if the invention satisfies three Patent Act requirements.²⁴ Section 101 of the Patent Act requires that a patentable invention be useful.²⁵ This requirement ensures that the public benefits from the invention.²⁶ Section 102 of the Patent Act requires that a patentable invention be novel, or unique.²⁷ This ensures that no prior patent has disclosed the invention so that the issuance of a patent will serve a socially useful purpose.²⁸ Finally, section 103 of the Patent Act mandates that a patentable invention must not have been obvious in light of the prior art.²⁹ This requirement distinguishes true invention from a mere alteration of detail.³⁰

At its enactment in 1952,³¹ section 103 did not provide a clear standard for determining nonobviousness.³² Prior to the passage of this section, courts required that an invention be "innovative" to be patentable.³³ The courts, however, used a variety of different tests to measure this analogue to

Columbia decision to the Court of Appeals for the Federal Circuit. 2 *id.*

²⁴ 1 *id.* § 1.03.

²⁵ 35 U.S.C. § 101 (1988). The inventor of a new and useful "process, machine, manufacture, or composition of matter" may obtain a patent on her invention. *Id.*

²⁶ See *Brenner v. Manson*, 383 U.S. 519, 534-35 (1966) (explaining that, in consideration for granting monopoly, government requires useful invention which will benefit public).

²⁷ 35 U.S.C. § 102 (1988). An applicant is entitled to a patent unless others knew of or used the invention in the United States prior to her invention. *Id.* Also, an applicant cannot obtain a patent if others have previously patented or described the invention in a printed publication in the United States or a foreign country. *Id.* In addition to imposing novelty as a requirement, § 102 names events by which an inventor, through her own actions, may lose the right to a patent. 2 ERNEST B. LIPSCOMB III, *WALKER ON PATENTS* § 7:1 (3d ed. 1985). Section 102(b) prevents an inventor from obtaining a patent if the invention was in use or on sale in the United States for more than one year prior to the application date. 2 *id.* Under § 102(c), an inventor will lose the right to a patent if she actually or constructively abandons the invention. 2 *id.*

²⁸ PAUL GOLDSTEIN, *COPYRIGHT, PATENT, TRADEMARK AND RELATED STATE DOCTRINES: CASES AND MATERIALS ON THE LAW OF INTELLECTUAL PROPERTY* 403 (rev. 3d ed. 1993).

²⁹ 35 U.S.C. § 103 (1988). For a discussion of this statute, see *supra* note 2.

³⁰ 2 LIPSCOMB, *supra* note 27, § 6:3.

³¹ Patent Act, ch. 950, § 103, 66 Stat. 792, 798 (1952) (codified as amended at 35 U.S.C. § 103 (1988)). Prior to 1952, novelty and utility were the only tests of patentability. *Graham v. John Deere Co.*, 383 U.S. 1, 3 (1966). These tests date back to the Patent Act of 1793. *Id.*

³² Gary A. Ray, Comment, *An Objective Test for Chemical Patents*, 26 U.C. DAVIS L. REV. 227, 234 (1992).

³³ Jean F. Rydstrom, Annotation, *Application and Effect of 35 USCS § 103, Requiring Nonobvious Subject Matter, in Determining Validity of Patents*, 23 A.L.R. FED. 326, 351 (1975).

nonobviousness.³⁴ In 1966, the Supreme Court finally clarified the nonobviousness standard in *Graham v. John Deere Co.*³⁵

Graham involved a device that the plaintiff, Graham, had designed to prevent damage to plows.³⁶ The device absorbed shock from the plow shank as it tilled through soil.³⁷ Graham received a patent on this device in 1953, although it was a modification of a device he had previously patented.³⁸ After competing plow manufacturers came up with devices similar to his, Graham brought suit for infringement of his patent.³⁹ The Court of Appeals for the Eighth Circuit held, however, that Graham's patent was invalid.⁴⁰ It found that Graham's combination of old elements to create the patented device produced no new result.⁴¹

In affirming the Eighth Circuit's judgment, the United States Supreme Court determined the standard of invention Congress intended by enacting section 103.⁴² An 1850 United States Supreme Court decision, *Hotchkiss v. Greenwood*,⁴³ was central to

³⁴ See *Cuno Eng'g Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941) (holding that patentable device must demonstrate flash of creative genius rather than mere skill of calling); *Atlantic Works v. Brady*, 107 U.S. 192, 200 (1882) (denying patent unless device distinctly shows exercise of invention beyond usual mechanical or engineering skill); *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 266 (1850) (requiring level of skill and ingenuity essential to all inventions instead of work of skillful mechanic).

³⁵ 383 U.S. 1 (1966).

³⁶ *Id.* at 4.

³⁷ *Id.*

³⁸ *Id.* at 21. In 1950, Graham obtained a patent on a spring clamp. *Id.* This clamp prevented plow shanks from breaking due to vibrations resulting from rocky soil. *Id.* In his new device, Graham repositioned the attachment of the shank to the hinge plate, making the shank more flexible. *Id.* at 22-23.

³⁹ *Id.* at 21.

⁴⁰ *Id.* at 4. The Court of Appeals for the Fifth Circuit earlier held this same patent to be valid. *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511, 520 (5th Cir. 1955), *cert. denied*, 350 U.S. 826 (1955). The basis for the Fifth Circuit's ruling was that a combination of old elements is patentable if it produces an old result in a less expensive way. *Id.* at 519.

⁴¹ *Graham*, 383 U.S. at 4.

⁴² *Id.* at 3.

⁴³ 52 U.S. (11 How.) 248 (1850). In *Hotchkiss*, plaintiffs brought an action for infringement of their patent on doorknobs made of clay and porcelain. *Id.* at 264. In constructing their doorknobs, plaintiffs had fastened the shank to a clay or porcelain knob rather than to a wood or metal knob. *Id.* at 265. The trial judge instructed the jury that plaintiffs' patent was invalid if no more skill was needed to construct knobs in this way than the ordinary level of skill in the field. *Id.* at 265. The Supreme Court found no error in this instruction and affirmed judgment for defendants. *Id.* at 267.

the analysis.⁴⁴ In *Hotchkiss*, the Court held that a patentable invention must show more ingenuity and skill than an ordinarily-skilled mechanic in the field possesses.⁴⁵ The *Graham* Court stated that the *Hotchkiss* standard required courts to compare the subject matter of the patent with the normal skill level in the trade.⁴⁶ It concluded that section 103 codified the *Hotchkiss* standard for patentability.⁴⁷

⁴⁴ *Graham*, 383 U.S. at 11.

⁴⁵ *Hotchkiss*, 52 U.S. at 267.

⁴⁶ *Graham*, 383 U.S. at 12.

⁴⁷ *Id.* at 17. The *Graham* Court pointed to the Senate and House Reports, S. REP. NO. 1979, 82d Cong., 2d Sess. (1952) and H.R. REP. NO. 1923, 82d Cong., 2d Sess. (1952). *Graham*, 383 U.S. at 14. The reports stated that § 103 paraphrases the language that courts have often used and that the purpose of the section is to provide uniformity and definiteness. *Id.* at 15.

The *Graham* Court set out the factual inquiries that a court must make in determining whether an invention is obvious. *Id.* at 17. First, a court must determine what constitutes the prior art. *Id.* Next, a court must consider how the inventor's claims differ from this prior art. *Id.* To determine this difference, a court must consider both what the claims recite and the inherent properties that the specification discloses. 2 ROSENBERG, *supra* note 4, § 9.02[2][a][ii]. Finally, a court must ascertain the usual skill level in the pertinent field. *Graham*, 383 U.S. at 17.

In addition to these three basic inquiries, the *Graham* Court set out several subtests of invention. *Id.* at 17-18. These subtests are secondary considerations that a court may take into account when determining obviousness. *Id.* Courts differ as to the amount of deference they grant to these subtests. 2 ROSENBERG, *supra* note 4, § 9.05.

One subtest of invention is the commercial success of the invention. 2 *id.* § 9.05[1]. If the invention does not require more than the ordinary level of skill in the field, ordinarily-skilled persons would have capitalized on the demand. Rydstrom, *supra* note 33, at 412. For applications of this subtest, see *Illinois Tool Works, Inc. v. Sweetheart Plastics, Inc.*, 436 F.2d 1180, 1187 (7th Cir. 1971) (holding patent on plastic cups valid partly because of sale of several billion cups), *cert. denied*, 403 U.S. 942 (1971); *Reiner v. I. Leon Co.*, 285 F.2d 501, 503 (2d Cir. 1960) (holding that great commercial success is telling circumstance in assessing validity of patent on hair clamps), *cert. denied*, 366 U.S. 929 (1961); *S.H. Kress & Co. v. Aghnides*, 246 F.2d 718, 721 (4th Cir. 1957) (holding patent valid on water aerator where consumers purchased 21,000,000 units embodying device), *cert. denied*, 355 U.S. 889 (1957). Some courts have looked to other tests where the commercial success was not necessarily due to nonobviousness. *See, e.g.*, *Rains v. Niaqua, Inc.* 406 F.2d 275, 279 (2d Cir. 1969) (holding patent on above-ground swimming pool invalid despite pool's commercial success because social and economic factors may have been cause of success), *cert. denied*, 395 U.S. 909 (1969).

Another subtest of invention is the long-felt demand for the invention. 2 ROSENBERG, *supra* note 4, § 9.05[2]. This subtest derives from the belief that ordinarily-skilled workers would have solved the problem themselves if the solution required only ordinary skill in the field. Rydstrom, *supra* note 33, at 416. For demonstrations of this subtest's implementation, see *Norman v. Lawrence*, 285 F.2d 505, 506 (2d Cir. 1960) (holding patent on clip-on earring pads valid partly due to long-felt need); *Brown v. Brock*, 240 F.2d 723, 727 (4th Cir. 1957) (recognizing long-felt want for weeping dolls as indication of

The *Graham* Court interpreted section 103 in the context of a mechanical invention.⁴⁸ Section 103, however, also applies to chemical inventions,⁴⁹ which present special concerns regarding the predictability of their properties.⁵⁰ Left unanswered in *Gra-*

nonobviousness). In some cases, courts have chosen not to apply the test because no one had sought a solution to the unfulfilled need. *See, e.g.,* *Welsh Mfg. Co. v. Sunware Prods. Co.*, 236 F.2d 225, 227 (2d Cir. 1956) (holding patent on sunglasses invalid due to obviousness where no evidence pointed to sustained effort to combine top bar and sweat bar).

A third subtest of invention is commercial acquiescence. 2 ROSENBERG, *supra* note 4, § 9.05[3]. Competitors' willingness to obtain licenses under a patent and to pay royalties for its use indicates recognition that the invention is not obvious. *Rydstrom*, *supra* note 33, at 422. For decisions in which courts applied this subtest, see *Columbia Broadcasting Sys. v. Sylvania Elec. Prods., Inc.*, 415 F.2d 719, 727 (1st Cir. 1969) (finding it significant that those trained in field recognized patent on television picture tubes as breakthrough), *cert. denied*, 396 U.S. 1061 (1970); *Shaw v. E.B. & A.C. Whiting Co.*, 417 F.2d 1097, 1105 (2d Cir. 1969) (holding patent on artificial brush bristles valid partly because leader in field took out license under patent), *cert. denied*, 397 U.S. 1076 (1970).

A fourth subtest of invention is the skepticism of experts. 2 ROSENBERG, *supra* note 4, § 9.05[4]. An inventor creating an invention that others believe she should not create indicates nonobviousness. ROBERT L. HARMON, *PATENTS AND THE FEDERAL CIRCUIT* 106 (1988). For application of this subtest, see *Amstar Corp. v. Envirotech Corp.*, 730 F.2d 1476, 1478-79 (Fed. Cir. 1984) (noting that obviousness defense was frivolous where infringer's engineers were skeptical of patented method), *cert. denied*, 469 U.S. 924 (1984); *Honolulu Oil Corp. v. Shelby Poultry Co.*, 293 F.2d 127, 131 (4th Cir. 1961) (holding that patented device for removing poultry feathers was nonobvious where experts in field deemed it impractical).

A fifth subtest of invention is praise for the invention. 2 ROSENBERG, *supra* note 4, § 9.05[5]. An impartial expert's recognition of an invention's significance indicates nonobviousness. *Rydstrom*, *supra* note 33, at 398. For decisions in which the court applied this subtest, see *Amerace Esna Corp. v. Highway Safety Devices, Inc.*, 330 F. Supp. 313, 318 (N.D. Tex. 1971) (holding patent on pavement markers valid, partly due to acclaim for markers); *Hunt Indus., Inc. v. Fibra Boats, Inc.*, 299 F. Supp. 1145, 1149 (S.D. Fla. 1969) (noting that articles and publications praising small boat hull's design indicate nonobviousness).

A final subtest of invention is whether others have copied the invention. 2 ROSENBERG, *supra* note 4, § 9.05[6]. Infringers' efforts to share in the patentee's rewards through copying indicate that the invention was not obvious to those ordinarily-skilled in the field. *Rydstrom*, *supra* note 33, at 424. For application of this subtest, see *Lancaster Colony Corp. v. Aldon Accessories, Ltd.*, 506 F.2d 1197, 1199 (2d Cir. 1974) (holding patent on cigar-holding ashtray valid partly due to its imitation by alleged infringers); *National Dairy Prods. Corp. v. Borden Co.*, 394 F.2d 887, 891 (7th Cir. 1968) (holding that rival cheese packagers usurping patented method of packaging indicates nonobviousness), *cert. denied*, 393 U.S. 953 (1968); *Shields-Jetco, Inc. v. Torti*, 314 F. Supp. 1292, 1298 (D.R.I. 1970) (ruling that slavish imitation of patented trench-shoring machine indicates nonobviousness), *aff'd*, 436 F.2d 1061 (1st Cir. 1971).

⁴⁸ *See supra* notes 36-37 and accompanying text (describing Graham's patented device).

⁴⁹ 2 ROSENBERG, *supra* note 4, § 9.04[8].

⁵⁰ *See infra* notes 51-53 and accompanying text (discussing difficulty of predicting

ham was how the nonobviousness requirement of section 103 applies to chemical inventions.

B. *Chemical Compounds and the Determination of Obviousness*

1. The Nature of Chemical Compounds and its Effect on the Obviousness of Structurally Similar Chemical Compounds

Special concerns arise with chemical patents because the properties of chemical compounds can be less predictable than those of mechanical inventions.⁵¹ When an inventor brings together old mechanical components, normally no new and unexpected result follows.⁵² In contrast, a slight change in the structure or composition of a chemical compound can have dramatic effects on its properties.⁵³ Thus, although the obviousness of a chemical compound depends upon structural similarity to the prior art, structural similarity alone cannot adequately determine patentability.⁵⁴

Despite this potential for unpredictability, structurally similar chemical compounds generally do possess similar chemical prop-

properties of chemical structures).

⁵¹ See 2 ROSENBERG, *supra* note 4, § 9.04[8] (explaining that unpredictable nature of chemistry increases likelihood of nonobviousness).

⁵² *Great Atlantic & Pacific Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950). In *Great Atlantic*, plaintiff sued defendant for infringing its patent on a cashier stand that incorporated a rack. *Id.* at 148. The Supreme Court reversed the judgment for plaintiff on the ground that the patent was invalid. *Id.* at 148, 154. The cashier stand consisted entirely of elements from the prior art. *Id.* at 149. Lower courts had failed to consider whether plaintiff's unification of these old elements resulted in a new quality or function. *Id.* at 152. As with most combinations of old mechanical elements, the Supreme Court found no unusual results stemming from plaintiff's combination. *Id.*

⁵³ See Roberts, *supra* note 5, at 815 n.1 (stating that chemical compounds with same formula but different structures can have completely different properties). For example, both ethyl alcohol and methyl ether have the formula C₂H₆O. *Id.* Their structures, however, are different. *Id.* Ethyl alcohol has the structure CH₃CH₂OH, while the structure of methyl ether is CH₃OCH₃. *Id.* This difference in structure results in the two compounds having different properties. *Id.* Similarly, compounds with analogous structures but slightly different compositions can have different properties. For example, the human consumption of methyl alcohol, which has the chemical formula CH₃OH, will cause blindness. K. PETER VOLLHARDT, *ORGANIC CHEMISTRY* 342 (1987). In contrast, ethyl alcohol, which has the analogous chemical formula CH₃CH₂OH, is the intoxicating component of beer and other alcoholic beverages. *Id.*

⁵⁴ 2 ROSENBERG, *supra* note 4, § 9.04[8].

erties.⁵⁵ As a result, a prima facie case of obviousness may arise where chemical compounds are closely similar in their structures and properties.⁵⁶ An applicant must rebut this presumption of obviousness to obtain a patent.⁵⁷ In *In re Dillon*,⁵⁸ the Court of Appeals for the Federal Circuit addressed what specifically constitutes prima facie obviousness when a chemical compound is structurally similar to the prior art.

In *Dillon*, the Board denied Dillon's patent application on the ground of obviousness.⁵⁹ Dillon's patent application claims were for hydrocarbon fuel containing certain compounds that reduced the emission of soot during fuel combustion.⁶⁰ In rejecting the application, the Board pointed to several earlier pat-

⁵⁵ See VOLLHARDT, *supra* note 53, at 46 (describing dictation of reactivity of organic molecules). Most organic molecules have one or more functional groups, which are the parts of the molecule that control reactivity. *Id.* These groups have characteristic functions. *Id.* Thus, when two molecules have the same functional groups, they are likely to have similar chemical properties.

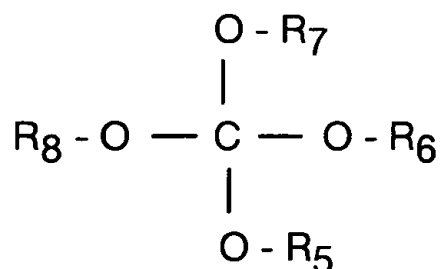
⁵⁶ *In re Payne*, 606 F.2d 303, 314 (C.C.P.A. 1979). In *Payne*, an applicant appealed from the Board's rejection of his claims for pesticide compounds. *Id.* at 303. The United States Court of Customs & Patent Appeals affirmed the rejection on the ground that the applicant failed to rebut prima facie obviousness. *Id.* at 318. The court pointed to the similarity in chemical structures and properties between the applicant's compounds and the prior art. *Id.* at 314. The court then reasoned that these structurally similar prior art pesticides would motivate a person of ordinary skill in the field to make the applicant's compounds. *Id.*

⁵⁷ 2 ROSENBERG, *supra* note 4, § 9.04[1].

⁵⁸ 919 F.2d 688 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 904 (1991).

⁵⁹ *Id.* at 690-91.

⁶⁰ *Id.* at 690. The compounds Dillon added to the fuel were tetra-orthoesters. *Id.* Dillon's claims described these compounds as orthoesters of the formula:



where R₅, R₆, R₇, and R₈ are monovalent organic radicals consisting of 1 to about 20 carbon atoms. *Id.* at 690-91.

ents.⁶¹ One of these patents was on hydrocarbon fuels containing compounds that removed water.⁶² These dewatering compounds were structurally similar to the soot-reducing compounds in Dillon's fuel.⁶³ Another earlier patent described the use of Dillon's additive compounds to remove water from non-hydrocarbon fuels.⁶⁴

On appeal, Dillon argued that, although her additives were structurally similar to additives in previously patented compositions, her additives had a different use.⁶⁵ The Court of Appeals for the Federal Circuit noted that the prior art neither taught nor suggested Dillon's method of reducing emissions.⁶⁶ The court held, however, that whether the prior art teaches or suggests the properties of the claimed compound does not determine prima facie obviousness.⁶⁷ Consequently, for purposes of prima facie obviousness, it did not matter that the earlier patents had failed to indicate that Dillon's additives would reduce soot.⁶⁸

Instead of adopting a test dependent upon whether the prior art suggests the properties of the claimed compound, the *Dillon* court created a new test for prima facie obviousness. Under this test, prima facie obviousness arises where the prior art suggests or motivates the selection of the structurally similar claimed composition.⁶⁹ Thus, Dillon's structurally similar compounds were prima facie obvious because the prior art provided Dillon

⁶¹ *Id.* at 691.

⁶² *Id.*

⁶³ *Id.* The dewatering compounds were tri-orthoesters. *Id.* Tri-orthoesters have three -OR groups bonded to a central carbon atom, along with either hydrogen or a hydrocarbon group (-R). *Id.* at 691 n.2. Thus, tri-orthoesters have the formula C(R)(OR)₃. *Id.* Tetra-orthoesters have four -OR groups bonded to a central carbon atom, and have the formula C(OR)₄. *Id.*

⁶⁴ *Id.* at 691.

⁶⁵ *Id.* at 692. Prior to the *Dillon* en banc decision, a panel of the court heard Dillon's appeal and reversed the Board's patent denial. *Id.* at 690 n.1. The PTO subsequently petitioned for rehearing. *Id.*

⁶⁶ *Id.* at 691.

⁶⁷ *Id.* at 693. In reaching its holding, the court expressly overruled *In re Wright*, 848 F.2d 1216 (Fed. Cir. 1988). *Dillon*, 919 F.2d at 693. In *Wright*, the Federal Circuit held that for prima facie obviousness a reference must show or suggest the properties and results of the claimed structure. *Wright*, 848 F.2d at 1220.

⁶⁸ See 2 ROSENBERG, *supra* note 4, § 9.04[8][a] (stating that whether prior art discloses or suggests properties of claimed compound has no bearing on prima facie obviousness).

⁶⁹ *Dillon*, 919 F.2d at 692.

with motivation to make them.⁷⁰ The Board was justified in rejecting Dillon's patent application because she did not rebut this prima facie case of obviousness.⁷¹

Therefore, *Dillon* requires that the prior art suggest the structurally similar claimed compound for prima facie obviousness to arise.⁷² Rather than suggest the utility of the claimed compound, however, the prior art need only motivate one to make the claimed compound.⁷³ The *Dillon* court did not address whether this suggestiveness requirement also applied where a prior art generic chemical formula encompassed a new specific compound. From 1971 to 1992, the Court of Appeals for the Federal Circuit and its predecessor court addressed this issue in a series of three cases.

2. The Obviousness of Chemical Compounds Belonging to a Genus Disclosed in the Prior Art: The Pre-*Baird* Decisions

a. In re Susi

In re Susi,⁷⁴ a 1971 decision, illustrates the original bright-line approach to obviousness where a prior art generic chemical formula encompassed the claimed compound. In *Susi*, the plaintiff, Susi, applied for a patent on polymers resistant to deteriora-

⁷⁰ *Id.* at 693.

⁷¹ *Id.* Dillon did have the opportunity to rebut the finding of prima facie obviousness. *Id.* However, she provided no proof that her compounds possessed characteristics that prior art compounds did not, or that they possessed these characteristics to an exceptionally greater degree. *Id.* Dillon was also unsuccessful in her attempt to refute the significance of the teachings of the prior art. *Id.*

⁷² Craig A. Baldwin, Note, *In re Dillon: A New Approach to Chemical Patent Obviousness?* 38 WAYNE L. REV. 1599, 1610 (1992).

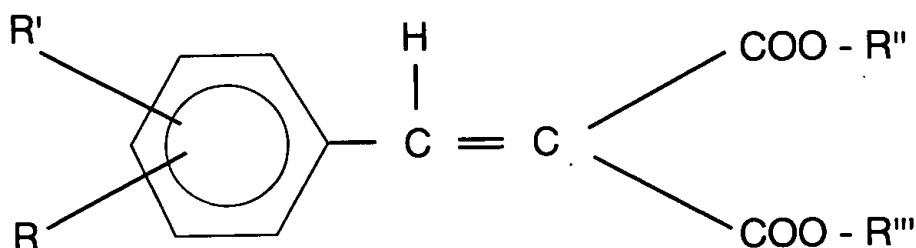
⁷³ See *supra* notes 67-69 and accompanying text (setting out *Dillon* approach to prima facie obviousness).

⁷⁴ 440 F.2d 442 (C.C.P.A. 1971).

tion by ultraviolet light.⁷⁵ The patentability of the claim centered on the stabilizing compounds Susi added to the polymers rather than on the specific polymers themselves.⁷⁶ The PTO examiner rejected Susi's application, and the Board affirmed.⁷⁷

The United States Court of Customs and Patent Appeals, the predecessor to the Court of Appeals for the Federal Circuit,⁷⁸ affirmed the examiner's rejection of Susi's application.⁷⁹ The court pointed to an earlier patent that described the stabilization of polymers against the destructive effects of ultraviolet light through the addition of two compounds.⁸⁰ One of these com-

⁷⁵ *Id.* at 443. The broadest claim was for the composition of a polymer and 0.01 to 2 weight percent of a compound with the following formula:



[A3927]

Id. R and R' represent alkanoyloxy of 2-12 carbons, alkenyloxy of 2-12 carbons, alkoxy of 1-12 carbons, alkyl of 1-12 carbons, hydroxy, or hydrogen. *Id.* R'' and R''' represent alkyl of 1-12 carbons, monocyclic ar (lower alkyl), or monocyclic aryl. *Id.* Susi identified melamines, polyesters, polymethylacrylate, polymethylmethacrylate, polyolefins, polystyrene, polyvinylchloride, and polyvinylidene chloride as the polymers one could select from. *Id.*

⁷⁶ *Id.*

⁷⁷ *Id.* at 444.

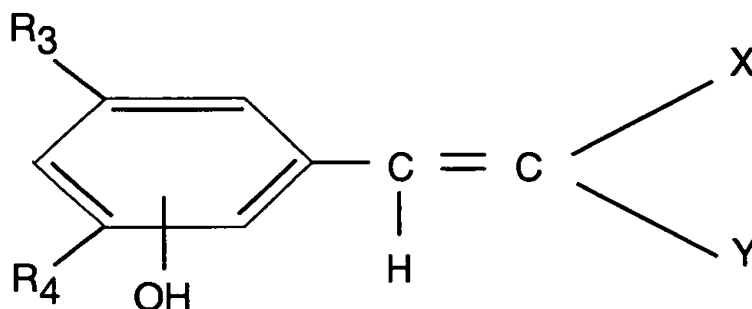
⁷⁸ See *supra* note 22 and accompanying text (explaining that United States Court of Customs and Patent Appeals had jurisdiction to hear appeals directly from PTO prior to creation of Court of Appeals for the Federal Circuit).

⁷⁹ *Susi*, 440 F.2d at 446.

⁸⁰ *Id.* at 444.

pounds was a generic formula which essentially encompassed the stabilizing additives that Susi's patent application included.⁸¹ The court found a prima facie case of obviousness which Susi

⁸¹ *Id.* at 444-45. The earlier patent described the compound as having the following general formula:



[A3928]

Id. at 444. R₃ represents an alkyl radical with 1-12 carbon atoms. *Id.* R₄ represents an alpha-branched alkyl radical with 3-12 carbon atoms. *Id.* X and Y are cyano radicals, nitro radicals, CON(R)₂, COOR, or COR. *Id.* R in turn represents hydrogen, an alkyl radical with 1-12 carbon atoms, or an aralkyl radical with 7-12 carbon atoms. *Id.* Finally, either X or Y can simply be hydrogen, although both cannot be. *Id.* The court did note that the earlier patent showed a hydroxyl group attached to the benzene ring, whereas Susi's claimed compound did not. *Id.* at 445. However, the court stated that Susi had shown no nonobvious results by excluding the hydroxyl group. *Id.*

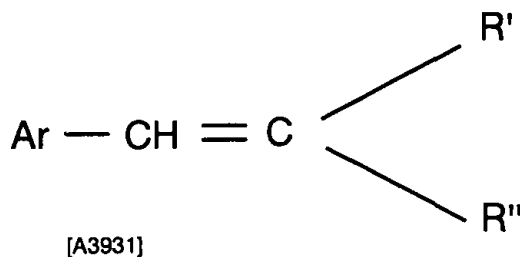
failed to rebut because this prior art generic formula encompassed Susi's additives.⁸²

b. Merck & Co. v. Biocraft Lab., Inc.

Eighteen years later, in *Merck & Co. v. Biocraft Lab., Inc.*,⁸³ the Court of Appeals for the Federal Circuit adhered to Susi's bright-line approach to obviousness when a prior art generic formula encompassed the claimed compound. In *Merck*, the plaintiff, Merck, sued Biocraft for infringing on its patent, U.S. Patent No. 3,781,430 (the '430 patent).⁸⁴ In the '430 patent,

⁸² *Id.* at 445-46. Susi raised an additional argument concerning the prior art patent. *Id.* at 446 n.3. The patent referred to its relevant general formula as the "particularly preferred embodiment." *Id.* The patent, however, termed a subclass of the compounds this general formula encompassed as the "most particularly preferred [embodiments]." *Id.* This subclass was not as close in structure to Susi's additives as other species that the general formula encompassed. *Id.* Thus, Susi argued that the patent steered inventors away from his claimed compound. *Id.* The court held, though, that suggesting another composition may be even better does not significantly steer one away from a particularly preferred embodiment. *Id.*

The Susi court cited a second prior art generic disclosure of a group of chemicals that served the same purpose as Susi's additives. *Id.* at 445. This disclosure had the following formula:



Id. Ar represents a benzene ring with one or more alkoxy or oxy groups as substituents. *Id.* R' represents (CH₂)_nCOOH, (CH₂)_nCOOR, CN, COOH, or COX. *Id.* R'' represents CN, COOH, COX, H, or R. *Id.* X in turn is alkyl, aryl substituted alkyl, NH₂, NHR, OR, RNR, or substituted aryl. *Id.* R is alkyl, aryl, hydrogen, substituted alkyl, or substituted aryl cycloalkyl. *Id.* Finally, n is a whole number, such as one or two. *Id.* This broad generic disclosure encompassed some of the compounds that Susi was attempting to patent. *Id.* Thus, the court concluded that Susi's claims were prima facie obvious in light of this previous patent as well. *Id.*

⁸³ 874 F.2d 804 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 975 (1989).

⁸⁴ *Id.* at 805.

Merck combined amiloride hydrochloride with hydrochlorothiazide for use as a diuretic.⁸⁵ After the district court ruled in Merck's favor, Biocraft asserted on appeal that the '430 patent was invalid on the ground of obviousness.⁸⁶ Biocraft specifically pointed to Merck's U.S. Patent No. 3,313,813 (the '813 patent) on a chemical genus that encompassed the claims of the '430 patent.⁸⁷

The Court of Appeals for the Federal Circuit reversed the district court, ruling that the '430 patent was invalid due to obviousness.⁸⁸ The Federal Circuit reasoned that the '813 patent indicated that any of the encompassed combinations would produce a diuretic with the desired properties.⁸⁹ It was insignificant that the '813 patent highlighted neither amiloride nor hydrochlorothiazide.⁹⁰ Rather, the obviousness determination was based on the mere encompassing of the claimed compounds by the '813 patent.⁹¹

⁸⁵ *Id.* The '430 patent specified the ratio of amiloride to hydrochlorothiazide as 1 part to 10 parts, by weight. *Id.* at 805-06.

⁸⁶ *Id.* at 805.

⁸⁷ *Id.* at 806. Specifically, the '813 patent disclosed various (3-amino-5, 6-disubstituted-pyrazinoyl) guanidines, including amiloride. *Id.* The patent then instructed that the guanidines could be used in combination with other classes of diuretics. *Id.* The patent gave hydrochlorothiazide as an example of a diuretic with which the claimed compounds could be effectively combined. *Id.* The district court found that the '813 patent disclosed 1200 combinations. *Id.* The district court further found that, although the '813 patent disclosed amiloride and hydrochlorothiazide, it failed to highlight either compound. *Id.* at 806-07.

⁸⁸ *Id.* at 807.

⁸⁹ *Id.* Amiloride, as are all the guanidines the '813 patent disclosed, is a potassium-conserving diuretic, while hydrochlorothiazide is a potassium-excreting diuretic. *Id.* at 805. Together, they reduce the amount of potassium ions that urine eliminates, but they do not affect the amount of sodium ions that urine eliminates. *Id.*

⁹⁰ *Id.* at 807. The *Merck* court relied on *In re Lamberti*, 545 F.2d 747 (C.C.P.A. 1976) in discounting the significance of the '813 patent highlighting neither amiloride nor hydrochlorothiazide. *Merck*, 874 F.2d at 807. The *Lamberti* court held that whether a patent indicates the preference of a specific embodiment is not determinative of obviousness. *Lamberti*, 545 F.2d at 750. Rather, a court must consider all of the disclosures of a patent, including unpreferred embodiments. *Id.*

⁹¹ *Merck*, 874 F.2d at 807.

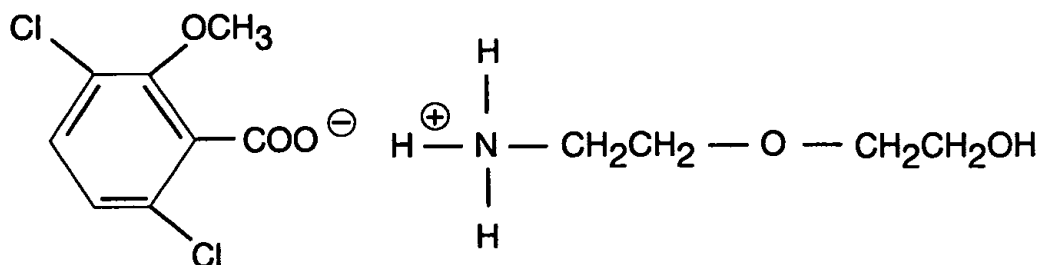
c. *In re Jones*

In 1992, the Court of Appeals for the Federal Circuit departed from the *Susi* and *Merck* bright-line approach to obviousness in favor of a more flexible approach.⁹² In *In re Jones*,⁹³ plaintiff Jones applied for a patent on the 2-(2'-aminoethoxy)ethanol salt of dicamba.⁹⁴ Dicamba was a known herbicide.⁹⁵ Another inventor, Richter, had previously patented salt forms of dicamba, including substituted ammonium salts.⁹⁶ These substituted ammonium salts constituted a genus, or a class with common characteristics, that encompassed Jones's claimed salt.⁹⁷ Richter, however, did not specifically disclose or highlight Jones's salt.⁹⁸ Nevertheless, the Board rejected Jones's application.⁹⁹ It concluded that Richter's patent rendered Jones's compound obvious.¹⁰⁰

⁹² See *infra* notes 102-08 and accompanying text (presenting *In re Jones* approach to obviousness).

⁹³ 958 F.2d 347 (Fed. Cir. 1992).

⁹⁴ *Jones*, 958 F.2d at 348. Jones's salt had the following structure:



Id.

⁹⁵ *Id.* Dicamba is the common name of 2-methoxy-3,6-dichlorobenzoic acid. *Id.*

⁹⁶ *Id.* at 349.

⁹⁷ *Id.*

⁹⁸ *Id.* While Richter did not specifically disclose Jones's 2-(2'-aminoethoxy)ethanol salt, he did list some typical amines that one could use to prepare the substituted ammonium salts and the products that would result. *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

On appeal, the Court of Appeals for the Federal Circuit overturned the Board's decision to reject Jones's application.¹⁰¹ First, the court observed that Jones's claimed salt was not particularly similar in structure to any of Richter's specifically patented salts.¹⁰² Thus, the claimed salt was not *prima facie* obvious based on structural similarity alone.¹⁰³ The court next conceded that Richter's generic disclosure encompassed Jones's salt.¹⁰⁴ Nonetheless, this finding did not render Jones's salt obvious.¹⁰⁵

The *Jones* court explicitly declined to read *Merck* as holding that every species is automatically obvious where a broad generic disclosure encompasses the individual species.¹⁰⁶ Instead, courts must decide each case involving obviousness based on its own facts.¹⁰⁷ Thus, the PTO had not established a *prima facie* case of obviousness regarding Jones's salt.¹⁰⁸

As *Susi*, *Merck*, and *Jones* demonstrate, the Court of Appeals for the Federal Circuit has altered its approach to obviousness determination over the years.¹⁰⁹ In *Susi* and *Merck*, the court applied a bright-line rule and automatically found obviousness where a prior art generic formula encompassed the claimed chemical compound.¹¹⁰ In *Jones*, however, the court departed from this rule in favor of a more fact-specific approach.¹¹¹ The

¹⁰¹ *Id.* at 348.

¹⁰² *Id.* at 350.

¹⁰³ *Id.* The court cited *In re Dillon*, 919 F.2d 688 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 904 (1991), for the proposition that particular types of structural similarity, without more, can give rise to *prima facie* obviousness. *Jones*, 958 F.2d at 349-50. However, this overstates the holding in *Dillon*, where the court did not eliminate suggestion as a requirement for *prima facie* obviousness based on structural similarity. See *supra* notes 59-73 and accompanying text (discussing *Dillon* approach to *prima facie* obviousness based on structural similarity).

¹⁰⁴ *Jones*, 958 F.2d at 350.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 351. The court found no evidence that the prior art would motivate a person ordinarily skilled in the field to make the modifications needed to arrive at Jones's compound. *Id.* Because the PTO did not establish *prima facie* obviousness, Jones did not have the burden of producing objective evidence of nonobviousness. *Id.*

¹⁰⁹ See *supra* notes 74-108 and accompanying text (presenting change in Federal Circuit's approach to obviousness).

¹¹⁰ See *supra* notes 74-91 and accompanying text (discussing *Susi* and *Merck* approach).

¹¹¹ See *supra* notes 92-108 and accompanying text (presenting *Jones* approach).

stage was thus set for *In re Baird*,¹¹² where the court faced this issue once again.

II. STATE OF THE LAW

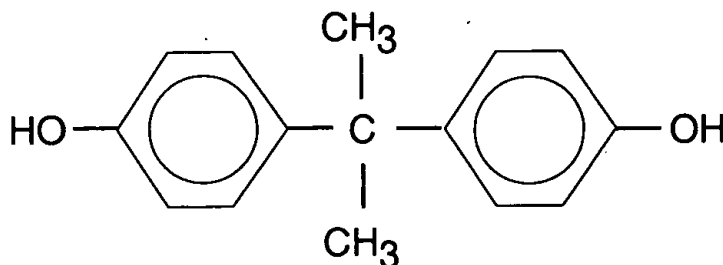
A. *In re Baird*

In deciding *Baird* in 1994, the Court of Appeals for the Federal Circuit cited *Jones* favorably and implicitly rejected the earlier bright-line approach of *Susi* and *Merck*. In *Baird*, the plaintiff, Baird, applied for a patent on a toner containing a specific binding resin.¹¹³ This resin consisted of a particular diphenol polyester, bisphenol A polyester,¹¹⁴ which could contain either succinic, glutaric, or adipic acid.¹¹⁵ The PTO examiner rejected this patent application claim as obvious based on an earlier patent by Knapp.¹¹⁶ The Knapp patent was on generic diphenol polyesters containing dicarboxylic acids, a general class

¹¹² 16 F.3d 380 (Fed. Cir. 1994).

¹¹³ *Id.* at 381. Baird referred to his toner as a "flash fusible toner." *Id.*

¹¹⁴ Bisphenol A has the following structure:



Id.

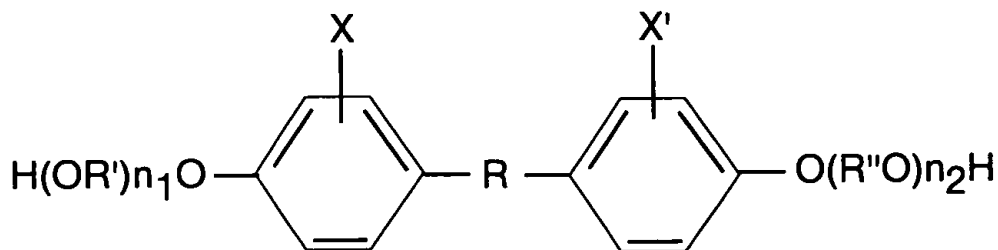
¹¹⁵ *Id.* Succinic, glutaric, and adipic acids are aliphatic dicarboxylic acids. *Id.*

¹¹⁶ *Id.* at 382.

of acids that includes succinic, glutaric, and adipic acids.¹¹⁷ The Board upheld the examiner's rejection of the application, reasoning that Knapp's disclosure provided sufficient motivation for the selection of Baird's particular resin because it encompassed that resin.¹¹⁸ Baird's claim, the Board concluded, was therefore obvious.¹¹⁹

On appeal, the Court of Appeals for the Federal Circuit reversed the rejection of Baird's application.¹²⁰ The court cited *Jones*,¹²¹ which had held that a claimed compound is not obvious merely because a generic formula in the prior art discloses it.¹²² The *Baird* court estimated that Knapp's generic diphenol formula encompassed over 100 million different diphenols.¹²³ It noted, however, that Knapp's patent did not suggest the selection of those variables that represent bisphenol A.¹²⁴ Thus, the

¹¹⁷ *Id.* at 381-82. The generic formula of Knapp's diphenol was:



Id. at 381. R represents a substituted or unsubstituted alkylene radical with approximately 2-12 carbon atoms, an alkylidene radical with 1-12 carbon atoms, or a cycloalkylidene radical with 3-12 carbon atoms. *Id.* R' and R'' represent substituted or unsubstituted alkylene radicals with 2-12 carbon atoms, alkylene arylene radicals with 8-12 carbon atoms, or arylene radicals. *Id.* X and X' represent hydrogen or an alkyl radical with one to four carbon atoms. *Id.* Finally, the n's represent numbers from zero to four. *Id.* This formula encompasses bisphenol A. *Id.* Although Knapp additionally gave a generic formula for the dicarboxylic acid, it specifically disclosed the dicarboxylic acids included in Baird's claim. *Id.* at 382.

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *Id.* at 383.

¹²¹ *In re Jones*, 958 F.2d 347 (Fed. Cir. 1992).

¹²² *Baird*, 16 F.3d at 382.

¹²³ *Id.*

¹²⁴ *Id.* The court emphasized that Knapp highlighted more complex diphenols and thus

court concluded that Knapp's patent did not motivate Baird's selection of bisphenol A.¹²⁵ The Board, therefore, had erred in rejecting Baird's application on the ground of obviousness.¹²⁶

At first glance, *Baird* seems to settle the conflict between *Susi*, *Merck*, and *Jones*. In *Baird*, the Court of Appeals for the Federal Circuit did not base its obviousness determination solely on whether the prior art generic formula encompassed the claimed compound.¹²⁷ Rather, like *Jones*, *Baird* considered whether the prior art motivated or suggested the selection of the specific claimed compound.¹²⁸ The PTO, however, soon spoke out against the *Baird* approach.

B. *The PTO's Response to Baird*

Approximately two months after the Federal Circuit decided *Baird*, the PTO distributed a directive instructing its examiners to disregard *Baird* when determining prima facie obviousness.¹²⁹ The directive stated that the Federal Circuit had applied an improper standard for assessing obviousness in *Baird*.¹³⁰ Instead of the *Baird* approach, the examiners were instructed to follow the bright-line test of *Susi* and *Merck*.¹³¹

deemphasized bisphenol A. *Id.* at 382-83.

¹²⁵ *Id.* at 383.

¹²⁶ *Id.*

¹²⁷ See *supra* note 122 and accompanying text (presenting *Baird's* implicit rejection of traditional approach to obviousness).

¹²⁸ See *supra* notes 121-26 and accompanying text (describing *Baird* approach to obviousness).

¹²⁹ *Patent and Trademark Office: PTO Will Not Follow CAFC Decision on Obviousness of Chemical Compounds*, 47 Pat. Trademark & Copyright J. (BNA) 500 (Apr. 7, 1994) [hereinafter *PTO Will Not Follow CAFC Decision*]. Normally, when the PTO believes the Federal Circuit has wrongly decided an appeal, it asks the court for reconsideration. *Id.* Alternatively, the PTO may request that the Solicitor General seek review of the decision by filing a petition for certiorari. *Id.* In *Baird*, however, the PTO discovered additional reasons to reopen the prosecution of Baird's application. *Id.* Because it was ultimately going to reject the application, the PTO concluded that it was inappropriate to burden Baird or the courts with additional pleadings. *Id.*

¹³⁰ *Id.*

¹³¹ *Id.* In the Federal Circuit, prior decisions of a panel of the court are binding until the court en banc overturns them. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 765 (Fed. Cir. 1988), *cert. denied*, 493 U.S. 814 (1989). *Baird* did not explicitly overrule *Susi* and *Merck*. *In re Baird*, 16 F.3d 380 (Fed. Cir. 1994). Furthermore, *Baird* was not an en banc decision. *Id.* Thus, it follows that *Susi* and *Merck* continue to be binding precedent. The PTO stated that it would call to the Federal Circuit's attention the conflict between *Baird* and binding

The PTO feared its examiners would interpret *Baird* to preclude an automatic finding of prima facie obviousness when a prior art generic formula encompassed the claimed compound.¹³² It did not want its examiners evaluating whether the earlier generic disclosure provided motivation for the selection of the claimed compound.¹³³ *Baird* requires precisely such an evaluation.¹³⁴ Without a bright-line test to apply, the PTO worried that its examiners would reach inconsistent patentability determinations.¹³⁵

III. ANALYSIS

Despite the PTO's misgivings, the *Baird* approach to obviousness of chemical compounds is preferable to the traditional approach of *Susi* and *Merck*.¹³⁶ First, *Baird* is consistent with the *Dillon* approach to prima facie obviousness.¹³⁷ Second, *Baird* is consistent with the United States' historical antipathy toward monopolies.¹³⁸ Finally, *Baird* promotes chemical research.¹³⁹ The PTO may argue that *Baird* does not provide a bright-line rule and that its inquiry into suggestion or motivation is indeterminate.¹⁴⁰ Nonetheless, these practical concerns do not out-

precedent if the issue arose again. *PTO Will Not Follow CAFC Decision*, *supra* note 129.

¹³² *PTO Will Not Follow CAFC Decision*, *supra* note 129.

¹³³ *Id.* The PTO went on to distinguish *In re Jones*, 958 F.2d 347 (Fed. Cir. 1992) from *Baird*. *Id.* The PTO noted that while the claimed compound in *Baird* was clearly obvious in light of the prior art, whether Jones's salt was obvious was less clear. *Id.*

¹³⁴ See *supra* notes 121-26 and accompanying text (describing *Baird* approach to obviousness determination).

¹³⁵ *PTO Will Not Follow CAFC Decision*, *supra* note 129. The PTO expressed that it must employ a consistent patentability standard in order to properly serve the public and patent applicants. *Id.*

¹³⁶ See *infra* notes 137-54 and accompanying text (discussing merits of *Baird* approach). PTO directives merely set forth guidelines for examiners to follow. ROBERT L. HARMON, PATENTS AND THE FEDERAL CIRCUIT § 13.1 (2d ed. 1991). The courts can disapprove any guidelines that they believe to be erroneous. *Id.*

¹³⁷ See *infra* text accompanying notes 142-44 (comparing *Dillon* approach with *Baird* approach).

¹³⁸ See *infra* text accompanying notes 147-50 (discussing historical view of monopolies and *Baird*'s effect on scope of patents).

¹³⁹ See *infra* text accompanying notes 152-54 (describing *Baird*'s promotion of chemical research).

¹⁴⁰ See *infra* text accompanying notes 155-56, 159 (presenting shortcomings of *Baird* approach).

weigh the policy considerations that support the *Baird* approach.¹⁴¹

A. *The Attributes of the Baird Approach*

The first of *Baird's* attributes is its consistency with the *Dillon* approach to prima facie obviousness where the claimed compound is structurally similar to the prior art. *Dillon* stated that a prior art reference does not have to suggest the properties of the claimed compound for that compound to be prima facie obvious.¹⁴² *Dillon* still required, however, that the prior art motivate the selection of the specific structurally similar claimed compound.¹⁴³ The determination of obviousness under *Baird* involves the same type of inquiry into motivation. In particular, *Baird* requires courts to consider whether the prior art generic formula motivated the selection of the specific claimed compound.¹⁴⁴

A consistent obviousness standard in the related contexts of *Dillon* and *Baird* is desirable. The Court of Appeals for the Federal Circuit believes that the effectiveness of the patent system in encouraging scientific advancement depends on its consistent interpretation of the law.¹⁴⁵ Thus, the Federal Circuit relentlessly strives for consistency in its interpretation of section 103.¹⁴⁶

¹⁴¹ See *infra* text accompanying notes 157-58, 160-61 (noting that *Baird's* shortcomings are due minimal weight).

¹⁴² See *supra* note 67 and accompanying text (describing *Dillon's* rejection of obviousness standard based solely on whether prior art suggests properties of claimed compound).

¹⁴³ See *supra* note 69 and accompanying text (noting requirement of *Dillon* approach that prior art motivate selection of claimed compound). In the context of genetic engineering, the court also required for prima facie obviousness that the prior art suggest the selection of the claimed compound. *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993). In *Bell*, applicants appealed the Board's rejection of their claims for nucleic acid molecules. *Id.* at 782. The Board had concluded that the claimed molecules were obvious in light of the prior art. *Id.* The prior art suggested a nearly infinite number of possible nucleotide sequences, only a few of which were applicants' claimed human sequences. *Id.* at 784. The Federal Circuit reversed the Board's decision on the ground that the PTO had not shown how the prior art taught or suggested the claimed invention. *Id.* at 783. The court held that the lack of such a showing precluded a finding of prima facie obviousness. *Id.*

¹⁴⁴ See *supra* notes 121-26 and accompanying text (discussing *Baird's* inquiry into motivation for selection of claimed compound).

¹⁴⁵ HARMON, *supra* note 136, § 4.2(a).

¹⁴⁶ *Id.*

The *Baird* approach is also compatible with the United States' historical aversion to monopolies.¹⁴⁷ Americans have long viewed monopolies as restraining trade and violating public policy.¹⁴⁸ Under *Baird*, a patent on a generic chemical formula will not entail an excessive monopoly. *Baird* limits the scope of the monopoly power of a patent on a generic chemical formula to those specific formulas that the generic formula suggests.¹⁴⁹ This limitation prevents the possibility that the monopoly will extend to millions of compounds.¹⁵⁰

Finally, the *Baird* approach promotes chemical research, which is one of the underlying goals of the patent system.¹⁵¹ A patent holder is not likely to develop and test each of the numerous compounds her generic chemical formula may encompass.¹⁵² Other chemists, however, will have little incentive to develop and test the individual compounds if they have no possibility of obtaining a patent.¹⁵³ Under *Baird*, this disincentive does not exist because each of the compounds that the generic formula encompasses is not automatically *prima facie* obvious.¹⁵⁴

B. Analyzing the Arguments Against the Baird Approach

As the PTO indicated in the directive to its examiners, the *Baird* approach does have potential drawbacks. Most significantly, *Baird* does not provide a bright-line rule like the earlier *Susi* and

¹⁴⁷ See *Graham v. John Deere Co.*, 383 U.S. 1, 7 (1966) (stating that first administrator of patent system, Thomas Jefferson, was averse to monopolies, like many Americans at time). See generally 1 ROSENBERG, *supra* note 4, § 1.03.

¹⁴⁸ 1 LIPSCOMB, *supra* note 27, § 1:3. Monopolies were unlawful at common law and under old English statutes. 1 *id.*

¹⁴⁹ See *supra* notes 121-26 and accompanying text (noting that *Baird* limits scope of obvious compounds by requiring suggestion).

¹⁵⁰ See *supra* notes 123-24 and accompanying text (noting that prior art generic chemical formula in *Baird* encompassed over 100 million different compounds without suggesting selection of each compound).

¹⁵¹ See 1 LIPSCOMB, *supra* note 27, § 1:8 (stating that patents encourage invention to benefit public).

¹⁵² See 1 ROSENBERG, *supra* note 4, § 1.08 (stating that time and money are involved in invention).

¹⁵³ See *supra* note 13 (explaining that inventors will only continue to invent if possibility of future profits exists).

¹⁵⁴ See *supra* note 122 and accompanying text (presenting *Baird* approach to *prima facie* obviousness).

Merck approach.¹⁵⁵ A court's inquiry no longer ends as soon as it determines that the prior art generic formula encompasses the claimed compound.¹⁵⁶ Despite their ease in implementation, however, bright-line rules are inflexible and often lead to unfair results.¹⁵⁷ Furthermore, the expertise of PTO examiners in evaluating patent applications should minimize the negative impact of losing a hard-and-fast rule.¹⁵⁸

Another potential drawback to *Baird* is that its inquiry into whether the prior art suggests or motivates the selection of the claimed compound is indeterminate. Because of this, patentability determinations under *Baird* may be inconsistent.¹⁵⁹ Nevertheless, if an examiner erroneously finds suggestion or motivation for the selection of the claimed compound, and thus prima facie obviousness, the applicant may rebut the finding.¹⁶⁰ On the other hand, if an examiner erroneously finds no suggestion or motivation and issues a patent, an interested party can still challenge the validity of the patent in court.¹⁶¹

¹⁵⁵ See *supra* notes 121-26 and accompanying text (explaining *Baird* approach).

¹⁵⁶ See *supra* notes 121-26 and accompanying text (describing inquiry *Baird* requires).

¹⁵⁷ See *United States v. Spillone*, 879 F.2d 514, 519 (9th Cir. 1989) (declining to adopt inflexible rule excluding evidence based on passage of certain amount of time), *cert. denied*, 498 U.S. 864 (1990), and *cert. denied*, 498 U.S. 878 (1990); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 946 (Fed. Cir. 1987) (Bennett, J., dissenting) (stating that bright-line rules are costly due to unfair results in some cases), *cert. denied*, 485 U.S. 961 (1988), and *cert. denied*, 485 U.S. 1009 (1988); *Vander Jagt v. O'Neill*, 699 F.2d 1166, 1175 (D.C. Cir. 1982) (equating inflexible doctrines with bright-line tests), *cert. denied*, 464 U.S. 823 (1983).

¹⁵⁸ See *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1558 (Fed. Cir. 1985) (indicating that patent examiners are experts at interpreting prior art references).

¹⁵⁹ See *PTO Will Not Follow CAFC Decision*, *supra* note 129 (stating that examiners searching for suggestion or motivation leads to selective application of prior art).

¹⁶⁰ See *supra* note 4 (explaining that prima facie obviousness is subject to rebuttal). The applicant is no worse off if the examiner erroneously finds prima facie obviousness under *Baird* than she would have been under *Susi* and *Merck*. Under the traditional approach, the applicant would have to rebut prima facie obviousness due to the prior art formula encompassing her compound. See *supra* notes 74-91 and accompanying text (describing traditional approach to obviousness).

¹⁶¹ See *supra* note 20 (explaining vulnerability of patents to declaratory judgments of invalidity).

CONCLUSION

Courts have long struggled with the patentability requirement of nonobviousness, particularly in the context of chemical compounds. In *Baird*, the Court of Appeals for the Federal Circuit departed from the traditional approach to obviousness where a prior art generic formula encompasses the claimed chemical compound. The *Baird* court did not adhere to the earlier bright-line approach. Instead, the court required that the prior art formula suggest or motivate the selection of the specific claimed compound for prima facie obviousness to arise. Although it does have its drawbacks, *Baird* is more consistent with the general approach to obviousness courts have taken in the chemical context. Additionally, *Baird* is more consistent with the underlying principles of the patent system.

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