



Fall 9-1-1980

## Combination Patents and Synergism: Must $2 + 2 = 5$ ?

Follow this and additional works at: <https://scholarlycommons.law.wlu.edu/wlulr>



Part of the [Intellectual Property Law Commons](#)

---

### Recommended Citation

*Combination Patents and Synergism: Must  $2 + 2 = 5$ ?* 37 Wash. & Lee L. Rev. 1206 (1980).

Available at: <https://scholarlycommons.law.wlu.edu/wlulr/vol37/iss4/11>

This Note is brought to you for free and open access by the Washington and Lee Law Review at Washington and Lee University School of Law Scholarly Commons. It has been accepted for inclusion in Washington and Lee Law Review by an authorized editor of Washington and Lee University School of Law Scholarly Commons. For more information, please contact [christensena@wlu.edu](mailto:christensena@wlu.edu).

## COMBINATION PATENTS AND SYNERGISM: MUST $2 + 2 = 5$ ?

The American patent system developed in an atmosphere of colonial concern over the flagrant abuse of monopolies in England.<sup>1</sup> The Constitution's framers gave Congress a very limited power to establish a system for granting monopolies to inventors.<sup>2</sup> Cognizant of the need to stimulate progress in science and the useful arts, the framers of the Constitution intended that the patent power should induce a free exchange of knowledge essential to this progress.<sup>3</sup> Reacting to the blatant misuse of English patents, however, the drafters' overriding concern was that the patent clause strictly limited the granting of monopolies so that patents would not remove existing knowledge from the public domain.<sup>4</sup> Congress attempted to carry out the drafters' intent by establishing the patent sys-

---

<sup>1</sup>The climate in the United States at the time the Constitution was drafted was very antagonistic toward monopolies. This distrust of monopolies grew out of the English practice of granting monopolies for common items to friends of the Crown. Thus, the colonists wanted to limit the ability of the government to grant patents which would serve to remove existing knowledge from the public domain. See *Graham v. John Deere Co.*, 383 U.S. 1, 5-10 (1966); Sears, *Combination Patents and 35 U.S.C. § 103*, 1977 DET. C.L. REV. 83, 88-89 [hereinafter cited as Sears]. See generally H. FOX, *MONOPOLIES AND PATENTS* (1947).

<sup>2</sup>The Constitution gives Congress the power "To promote the progress of . . . useful Arts, securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries." U.S. CONST., Art. I, § 8, cl. 8; see Sears, *supra* note 1, at 88-89; Comment, *Patentability of Mechanical Combinations—A Definition of Synergism*, 57 TEX. L. REV. 1043, 1043 (1979) [hereinafter cited as *Definition of Synergism*].

<sup>3</sup>In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Court cited Thomas Jefferson's opposition to monopolies. Although Jefferson was a motivating force behind the early patent system, he initially was doubtful that the benefit of limited monopolies in the form of patents would outweigh the burdens inherent to monopolies. See *id.* at 7-8. Although denying that an inventor had any natural right to a patent, Jefferson nevertheless believed that society should give the inventor a right to receive some benefit from his discovery. Further, in order to encourage scientists and inventors to pursue knowledge and to share their ideas and insights with the public, some form of economic inducement would be necessary. The inducement, chosen by Jefferson and the other constitutional drafters, took the form of allowing an inventor a limited private monopoly by granting exclusive patent rights to the inventor for a specified number of years. Jefferson, however, emphasized that strict standards must be observed to determine what inventions were "worth to the public the embarrassment of an exclusive patent." XIII THE WRITINGS OF THOMAS JEFFERSON 333-36 (Lipscomb ed. 1905).

<sup>4</sup>In *Shaw v. Cooper*, 32 U.S. (7 Pet.) 292 (1838), the Supreme Court recognized the intent of the constitutional provision to benefit the public. The Court perceived the patent system as the public giving the inventor a profitable limited monopoly in exchange for making the discovery available to society. *Id.* at 320. Congress, therefore, may not authorize patents which would stifle progress in technology by removing knowledge from the public domain. See *Gottschalk v. Benson*, 409 U.S. 63, 65 (1972). See also Irons & Sears, *The Constitutional Standard of Invention—The Touchstone for Patent Reform*, 1973 UTAH L. REV. 653, 654-58 [hereinafter cited as Irons & Sears].

tem. Codified in Title 35 of the United States Code, the standards by which an invention is judged for patentability are utility, novelty and nonobviousness.<sup>5</sup>

The nonobviousness requirement for patentability, originally a judicial creation,<sup>6</sup> was codified in 1952 as section 103 of Title 35.<sup>7</sup> Under section 103, an invention is not patentable if the subject matter of the patent is obvious to a skilled person.<sup>8</sup> One of the most controversial aspects of the nonobviousness requirement lies in its relationship and application to combination patents.<sup>9</sup> Combination patents involve new arrangements of components, all of which are well known in the prior art,<sup>10</sup> and thus, are especially difficult to judge for obviousness.<sup>11</sup> In *Graham v. John Deere Co.*<sup>12</sup> the Supreme Court first interpreted section 103 in relation to combination patents and developed a three prong test for obviousness.<sup>13</sup> Two

---

<sup>5</sup> Patent Act of 1952, ch. 950, 66 Stat. 792 (1952) (codified at 35 U.S.C. § 103 (1976)). The patent system was initially established by the Patent Act of 1790. The Act provided that a board made up of the Secretary of State, the Secretary of War and the Attorney General could, with the vote of any two members issue a valid patent for a period of fourteen years for an invention which was "sufficiently useful and important." Patent Act of 1790, ch. 7, § 1, 1 Stat. 109, 110.

The Patent Act of 1793 established the first statutory requirements of novelty and utility. Patent Act of 1793, Act of February 21, 1793, ch. 11, 1 Stat. 318 (codified at 35 U.S.C. §§ 101 & 102 (1976)). Responding to the Supreme Court's line of decisions holding that the Constitution imposed the further requirement that a patent could only be issued to an inventor and, therefore, the device must be an invention to be patentable, Congress later established the further requirement that the subject of the patent must not be obvious to one skilled in the art.

<sup>6</sup> *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248 (1851); see text accompanying notes 17-27 *infra*.

<sup>7</sup> 35 U.S.C. § 103 (1976). The nonobviousness requirement was codified in the Patent Act of 1952, ch. 950, 66 Stat. 792 (1952).

<sup>8</sup> 35 U.S.C. § 103 (1976). Section 103 provides:

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

<sup>9</sup> See Sullivan, *Trends in Section 103—Graham v. Deere*, in *CURRENT DEVELOPMENTS IN PATENT LAW* 1976, 253, 255 (G. Coplien, ed.) [hereinafter cited as Sullivan] (more patents are held invalid for obviousness than for any other reason).

<sup>10</sup> *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 150 (1950). Patent claims for a combination usually involve the aggregation or rearrangement of several component parts. All or most of the components are either common or the subject of a previous patent. *Id.*

<sup>11</sup> The A&P Court examined a combination patent and found that, due to the nature of a combination, the probability that the claim would be sufficiently innovative to be patentable was low. The Court further cautioned that combination patents must be examined much closer than other patents to ensure that existing knowledge is not being removed from the public domain. *Id.* at 151-52.

<sup>12</sup> 383 U.S. 1 (1966); see text accompanying notes 35-53 *infra*.

<sup>13</sup> 383 U.S. at 17; see text accompanying notes 43-53 *infra*.

subsequent Supreme Court decisions<sup>14</sup> have raised the issue of whether the Court has imposed the additional requirement that a combination exhibit a "synergistic effect"<sup>15</sup> in order to be patentable.<sup>16</sup> The Court could interpret section 103 to require a combination to result in an effect which is more than the total effect achieved by each individual component functioning together.

The patent statute enacted in 1793 required only that the invention be novel and useful.<sup>17</sup> The constitutional clause providing for granting patents, however, limited patent issuance to "inventors" for their discoveries.<sup>18</sup> In 1851, therefore, the Supreme Court judicially imposed a third condition of "invention" in *Hotchkiss v. Greenwood*.<sup>19</sup> The *Hotchkiss* Court found that the object of the patent must be the work of an inventor and not merely a skillful mechanic.<sup>20</sup> Thus, a discovery which is obvious or is developed according to well-known principles is not the work of an inventor and is outside the constitutional scope of the patent system.<sup>21</sup> Applying the inventor or invention requirement, the *Hotchkiss* Court held that the substitution of porcelain or clay for wood or metal in door-knobs required no more skill and ingenuity than that possessed by an ordinary person skilled in the art.<sup>22</sup>

By judicially imposing the additional requirement of invention, the *Hotchkiss* Court gave effect to the constitutional limitation that the discovery be an invention. The Court later reinforced its position and em-

<sup>14</sup> *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969); see text accompanying notes 53-75 *infra*.

<sup>15</sup> Synergism is the cooperative action of discrete elements in a manner that the total effect is greater than the sum of the two effects taken independently. WEBSTER'S SEVENTH NEW COLLEGIATE DICTIONARY 894 (1965). The Seventh Circuit devoted a large part of its decision in *Republic Indus., Inc. v. Schlage Lock Co.*, 592 F.2d 963 (7th Cir. 1979) to formulating a workable definition of synergism. The court examined other courts' definition of the term and found that the concept of synergism requires that the combination yield something more than the sum of the component parts. *Id.* at 969; see text accompanying notes 82-87 *infra*. See generally *Definition of Synergism*, *supra* note 2.

<sup>16</sup> *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Corp.*, 396 U.S. 57, 61 (1969); see text accompanying notes 112-13 *infra*.

<sup>17</sup> Act of February 21, 1793, ch. 11, 1 Stat. 318 (codified at 35 U.S.C. §§ 101-102 (1976)). Since Congress has never attempted to define novelty, the interpretation of the requirement has been judicially determined. Generally, novelty requires that the invention has not been previously known or used. See, e.g., *Evans v. Eaton*, 16 U.S. (3 Wheat.) 454 (1818). The utility requirement is rarely addressed by the courts and seems clear on its face. The Court in *Graham* considered the requirement in passing, finding that "the 'new and useful' tests which have always existed in the statutory scheme . . . need no clarification." 383 U.S. at 12. See also *Curtiss-Wright Corp. v. Link Aviation, Inc.*, 182 F. Supp. 106, 112-13 (N.D.N.Y. 1959) (utility is relative and requires only practicability rather than perfection).

<sup>18</sup> U.S. CONST., Art. I, § 8, cl. 8; see *Irons & Sears*, *supra* note 3, at 655-57, 679.

<sup>19</sup> 52 U.S. (11 How.) 248 (1851). In *Hotchkiss*, the plaintiff sued for the alleged infringement of his patent by the defendant, who asserted the invalidity of the patent as a defense. *Id.* at 264.

<sup>20</sup> *Id.* at 267.

<sup>21</sup> See *Irons & Sears*, *supra* note 5, at 655-56; text accompanying notes 3, 6, & 18 *supra*.

<sup>22</sup> 52 U.S. at 266. See also *Graham v. John Deere Co.*, 383 U.S. 1, 11 (1965).

phasized that a mere improvement, lacking in ingenuity or invention, is not entitled to patent protection.<sup>23</sup> Although the Supreme Court continued to impose the invention requirement during the intervening century,<sup>24</sup> the lower federal courts applied the requirement inconsistently due to the difficulty of defining what constituted an invention.<sup>25</sup> Also, the Patent and Trademark Office (PTO), charged with primary responsibility for issuing patents,<sup>26</sup> employed a very liberal standard of patentability with little, if any, regard for the invention requirement.<sup>27</sup>

---

<sup>23</sup> See *Pierce v. Mulford*, 102 U.S. 112, 118 (1880).

<sup>24</sup> See, e.g., *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147 (1950) (concept of invention in combinations "elusive" and thus not likely to be patentable); *Collar Co. v. Van Dusen*, 90 U.S. (23 Wall.) 530 (1875) (requiring invention to support patent); *Hollister v. Benedict Mfg. Co.*, 113 U.S. 59, 72 (1885) (invention is something new resulting from intuitive faculty of mind); see Comment, *Sakraida v. Ag Pro, Inc.: Combination Patents Now Require Synergistic Effects*, 15 Hous. L. Rev. 157, 159-61 (1977) [hereinafter cited as *Combination Patents*] (review of judicial history of invention requirement from 1851 through 1952).

<sup>25</sup> Federal circuit courts split in their attempt to define invention. One approach involved an analysis based on objective evidence. See, e.g., *United States Hat Mach. Corp. v. Boesch Mfg. Co.*, 108 F.2d 417 (2d Cir. 1939) (relying on objective evidence of "long felt need"); *Trico Prod. Corp. v. Apco-Mossberg Corp.*, 45 F.2d 594 (1st Cir. 1930) (relying on evidence of commercial success). The alternate approach involved a subjective determination of whether the claim was sufficiently important to constitute an invention. See, e.g., *Kirsch Mfg. Co. v. Gould Mersereau Co.*, 6 F.2d 793 (2d Cir. 1925). The Supreme Court recognized the difficulty of defining, and therefore, applying the invention requirement as early as 1891. *McClain v. Ortmyer*, 141 U.S. 419, 427 (1891). Since each court developed its own definition of invention, the standard of patentability varied with each court's application of its definition. See Edell, *The Supreme Court and Section 103*, 5 AM. PAT. L.A.Q.J. 99, 99-100 (1977).

<sup>26</sup> Application for a patent is initially made to an examining division of the Patent Office. An assistant examiner makes the original decision whether a patent should issue. A primary examiner reviews the initial decision if it is unfavorable to the applicant. Upon rejection of a patent by the examining division, the applicant may appeal to the Board of Appeals of the Patent Office. In the event that the Board of Appeals affirms the rejection, the applicant may seek judicial review in the Court of Customs and Patent Appeals, the United States District Court for the District of Columbia or the United States Court of Appeals for the District of Columbia. 35 U.S.C. §§ 141, 145 (1976); see Reynolds, *The Standard of Invention in the Patent Office* in DYNAMICS OF THE PATENT SYSTEM, 1, 3-9 (W. Ball, ed. 1960) [hereinafter cited as Reynolds].

<sup>27</sup> *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. at 156-58 (Douglas, J., concurring). Noting the large number of patents issued by the Patent and Trademark Office (PTO) subsequently invalidated by the Supreme Court, Justice Douglas implied that the PTO was not applying the judicial "invention" standard when determining whether an invention was patentable. *Id.*; see text accompanying note 32 *infra*. One reason for the more liberal standard applied by the PTO is inherent in the system itself. The initial determination of patentability is made by an individual patent examiner. The examiner is constrained by PTO rules to resolve doubts as to patentability in favor of the inventor. See note 26 *supra*. Further, the backlog of cases in the PTO and the lack of available time for in-depth examination of each application tend to decrease the standard which the invention must meet. See Reynolds, *supra* note 26, at 5. Underlying the tendency to grant patents to applicants is the fact that no review of the examiner's decision is triggered unless the decision is to reject the patent application. The administrative and judicial review of the issuing of a patent thus tends to lower, rather than raise the standard of patentability. *Id.* at 6-9; see

In 1950, the Supreme Court reiterated that novelty and usefulness, absent a showing of invention, were insufficient to sustain the validity of a patent. In *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*,<sup>28</sup> the Court considered the validity of a patent for an elongated cashier's counter with a movable rack for sliding goods from one end of the counter to the other. Finding that the extension of the counter was the only claim to novelty in the combination, the Court held that the combination of old elements lacked the concerted action of an invention necessary for patentability.<sup>29</sup> The *A&P* Court warned the lower courts that the validity of a patent for a mere aggregation of old elements could not be sustained when the "effect is to subtract from former resources freely available to skilled artisans."<sup>30</sup> Thus, the Court enforced the constitutional limitation of removing knowledge from the public domain.<sup>31</sup> Concurring in *A&P*, Justice Douglas criticized the PTO and lower courts for failing to apply a high standard of scrutiny when determining whether an invention was patentable. Justice Douglas pointed to twenty patents which the Supreme Court previously had held to be invalid for lack of invention as illustrative of the great departure of the patent system from the governing constitutional standards.<sup>32</sup>

Attempting to standardize the application of the judicial invention requirement and to eliminate the departure from constitutional limitations, Congress added the requirement of nonobviousness to existing Patent Act requirements of novelty and utility.<sup>33</sup> Section 103 of the Patent Act of 1952 provides that an invention is not patentable if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art."<sup>34</sup> Fourteen years after the enactment of section 103, the Supreme Court considered the section for the first time in *Graham v. John Deere Co.*<sup>35</sup> The validity of two combination patents was contested on the grounds that, as new arrangements of ele-

---

note 43, *infra*.

<sup>28</sup> 340 U.S. 147 (1950).

<sup>29</sup> *Id.* at 150-51.

<sup>30</sup> *Id.* at 152.

<sup>31</sup> *Id.*; see text accompanying notes 3-5 *supra*.

<sup>32</sup> 340 U.S. at 156-58 (Douglas, J., concurring); see text accompanying notes 24-27 *supra*.

<sup>33</sup> Act of July 19, 1952, ch. 950, 66 Stat. 792 (codified at 35 U.S.C. §§ 1-293 (1976)); see S. REP. No. 1979, 82d Cong., 2d Sess. 6 (1952); H.R. REP. No. 1923, 82d Cong., 2d Sess. 7 (1952). The Senate and House Reports explained that § 103 was a legislative attempt to standardize the application of the judicial "invention" standard and to include the standard in the statutory patent scheme. Judge Rich, drafter of § 103, however, contends that § 103 is a substitution for the invention requirement intended to revise rather than strictly codify former case law. Rich, *Laying the Ghost of the "Invention" Requirements*, 1 AM. PAT. L.A.Q.J., 26, 34-38 (1972) [hereinafter cited as Rich].

<sup>34</sup> 35 U.S.C. § 103 (1976); see note 9 *supra*.

<sup>35</sup> 383 U.S. 1 (1966). *Graham* was the first Supreme Court case to deal with the issue of patent validity since the Court decided *A&P* in 1950. *Id.* at 3.

ments well known in the prior art, the inventions did not meet the nonobvious requirement of section 103.<sup>36</sup> The Court examined the history of the patent system, case law prior to 1952, and the legislative history of the Patent Act of 1952.<sup>37</sup> Relying primarily upon the House and Senate Reports and the Reviser's Notes,<sup>38</sup> the *Graham* Court concluded that Congress intended section 103 to be a codification of the existing strict judicial standard of patentability requiring invention.<sup>39</sup> The Court found that Congress meant to give the requirement uniformity by codifying the existing case law which construed the invention requirement as one of nonobviousness.<sup>40</sup> The *Graham* Court reasoned that nonobviousness was a more objective standard than invention because nonobviousness is based upon factual inquiries rather than the quality of the discovery. The concept of nonobviousness to one skilled in the applicable art thus replaced that of invention as a more objective and workable standard.<sup>41</sup> As a result of the *Graham* Court's finding that section 103 codified rather than rejected judicial precedent, the Supreme Court may utilize pre-1952 case law in delineating the inquiries necessary to a judicial determination of obviousness.<sup>42</sup>

The Court in *Graham* set forth three basic factual inquiries to guide a court in ascertaining the obviousness of the subject matter of a patent

---

<sup>36</sup> In *Graham*, the Court consolidated three cases involving two distinct combination patents. In two separate suits for patent infringement, both the Fifth and Eighth Circuits had considered the validity of the *Graham* patent for a shank plow clamp. The Fifth Circuit held the patent valid in *Jeoffroy Mfg., Inc. v. Graham*, 219 F.2d 511, *cert. denied*, 350 U.S. 826 (1955), while the Eighth Circuit held the patent invalid, *John Deere Co. v. Graham*, 333 F.2d 529 (1964). These cases were consolidated to resolve the conflict between the circuits. Applying the test developed in *Graham*, the Eighth Circuit held valid a patent for a finger operated sprayer for bottles in *Colmar, Inc. v. Cook Chemical Co.*, 336 F.2d 110 (1965). The Supreme Court consolidated the three cases to consider the impact of § 103 on the judicial invention requirement and to ascertain what tests § 103 requires. 383 U.S. at 3. The Supreme Court developed a three prong inquiry to determine obviousness and held that neither patent was valid under § 103. *Id.* at 4-5.

<sup>37</sup> See *id.* at 5-17; note 33 *supra*.

<sup>38</sup> See 383 U.S. at 14-17. The Reviser's Notes had originally given § 103 the title of "conditions for patentability, lack of invention." 383 U.S. at 14 n.6. In explaining the purpose of § 103 as incorporating the judicial invention requirement, both the House and Senate Reports stated that § 103 statutorily provides a requirement which has existed judicially for more than 100 years. S. REP. NO. 1979, 82d Cong., 2d Sess. 6 (1952); H.R. REP. NO. 1923, 82d Cong., 2d Sess. 7 (1952). See also note 32 *supra*.

<sup>39</sup> 383 U.S. at 17; see *Sears*, *supra* note 2, at 85 n.17; Sullivan, *supra* note 9, at 260-61. But see note 33, *supra*.

<sup>40</sup> See 383 U.S. at 17; Sullivan, *supra* note 9, at 261.

<sup>41</sup> 383 U.S. at 16-17.

<sup>42</sup> See 383 U.S. at 19. The *Graham* Court, finding that Congress did not intend to lower the strict judicial standards of patentability, reasoned that precedent case law was codified rather than overruled. This attitude of the Supreme Court as to the viability of pre-1952 case law is further exemplified by the reliance of the Court on pre-1952 cases in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 60-61 (1969) and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 280-83 (1976).

claim.<sup>43</sup> The Court has applied the theoretical three step test to all subsequent cases in which patent validity is contested under section 103.<sup>44</sup> The first inquiry of obviousness concerns the state of the prior art.<sup>45</sup> Evaluating the prior art, the Court focused on two prior patents for devices composed of essentially the same elements as the contested patent.<sup>46</sup> Since *Graham*, the Court has examined current practices in the relevant field as a source of evidence contributing to the prior art. In *Dann v. Johnson*,<sup>47</sup> the PTO had rejected petitioners' patent claim for a mechanized system for recording bank checks and deposits. The PTO concluded that, based upon the established uses of digital computers in the banking field, the system was an obvious variation of a previous patent for a similar system. The Supreme Court affirmed the PTO patent rejection, reasoning that current uses of digital computers in the field was an important element of the prior art.<sup>48</sup>

The second *Graham* inquiry is directed to the differences between the prior art and the claims at issue. One basis for determining the extent of the difference between the patent claim and the prior art is expert testimony.<sup>49</sup> Finally, a court must define the ordinary skill in the relevant art<sup>50</sup> in order to decide the ultimate issue of whether the subject matter of the patent claim was obvious to one skilled in the art.<sup>51</sup> The last two factual inquiries often are consolidated into a one step analysis.<sup>52</sup> Even

---

<sup>43</sup> 383 U.S. at 17-19. After describing the three factual inquiries to be made when any patent is examined for obviousness, the Court concluded that strict observance of these tests will yield the uniformity sought by Congress in enacting § 103. The Court went on to chastise the PTO for failing to maintain a high standard for patentability. The Court concluded that although the test set forth in *Graham* was intended for application by the courts, the PTO should apply at least as stringent a standard in the initial determination of patentability. *Id.* at 18-19; see note 27 *supra*.

<sup>44</sup> See *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 280 (1976); *Dann v. Johnston*, 425 U.S. 219, 226 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 59 (1969).

<sup>45</sup> 383 U.S. at 22.

<sup>46</sup> *Id.* at 22-24. Before narrowing the discussion to two patents, the Court examined seventeen prior patents cited by the parties as pertinent to the determination of the prior art. The two prior patents considered by the Court as significant to the determination of obviousness were for clamps which were similar to the clamp at issue in all but two elements. *Id.* at 22.

<sup>47</sup> 425 U.S. 219 (1976).

<sup>48</sup> *Id.* at 227.

<sup>49</sup> 383 U.S. at 17; see, e.g., *Reinke Mfg. Co. v. Sidney Mfg. Corp.*, 594 F.2d 644, 651 n.9 (8th Cir. 1979).

<sup>50</sup> 383 U.S. at 17. In determining the level of ordinary skill in the relevant art, a court usually focuses on the issue of what is the relevant art. In *Reinke Mfg. Co. v. Sidney Mfg. Corp.*, 594 F.2d 644 (8th Cir. 1979), the Eighth Circuit relied on trial testimony to find that the level of skill relevant to the patent was that of a student experienced in structural engineering. *Id.* at 651.

<sup>51</sup> 383 U.S. at 17-18.

<sup>52</sup> In *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969), the Supreme Court combined an analysis of the difference between the claim and the prior art and the obviousness of that difference. The *Black Rock* claim involved four previously pat-



the Supreme Court, applying the three-prong test for the first time to the *Graham* patent, proceeded directly from a determination of the scope of the prior art to a consideration of the obviousness of the differences.<sup>53</sup>

Although the Supreme Court has applied the three step *Graham* analysis uniformly, subsequent Supreme Court cases have created uncertainty concerning whether *Graham* delineates the sole test of obviousness under section 103.<sup>54</sup> In *Anderson's-Black Rock Inc. v. Pavement Salvage Co.*,<sup>55</sup> the Court addressed the validity of a patent issued for the combination of a radiant heat burner and the elements of a standard paving machine which include a bituminous spreader, a tamper, and a screed.<sup>56</sup> All four of these devices were the subject of prior valid patents and the patent in issue merely claimed the invention of combining all the components on one single chassis.<sup>57</sup> The Court made the factual inquiries prescribed by *Graham* and concluded that the combination was obvious to one skilled in the art.<sup>58</sup> Recognizing the constitutional limitation that Congress cannot allow a patent to remove existing knowledge from the public, the Court rejected the validity of the patent on the grounds of obviousness.<sup>59</sup>

As a part of the obviousness determination, the *Black Rock* Court considered the manner in which the components of the system function together. Citing *A&P*, the Court affirmed the district court's finding that the concerted action of the elements must result in a function which is greater than that of the sum of the elements functioning separately.<sup>60</sup> The Supreme Court referred to the functioning of the individual elements in a manner in which the resultant effect is greater than the sum of the effects of each component as a "synergistic result."<sup>61</sup> The Court then focused on the lack of synergism in the combination as a partial basis for the conclusion that the invention was obvious to one skilled in the art and therefore not patentable.<sup>62</sup>

---

ented elements combined into one invention. Finding no difference between the function of the elements alone or in combination, the Supreme Court held the combination to be obvious to one skilled in the relevant art. *Id.* at 62-63.

<sup>53</sup> 383 U.S. at 24.

<sup>54</sup> See *Champion Spark Plug Co. v. Gyromat Corp.*, 603 F.2d 361, 372 (2d Cir. 1979) (*Graham* was sole test of obviousness), *cert. denied*, 100 S. Ct. 1276 (1980); text accompanying notes 75-109 *infra*. See generally *Combination Patents*, *supra* note 24.

<sup>55</sup> 396 U.S. 57 (1969).

<sup>56</sup> *Id.* at 58.

<sup>57</sup> *Pavement Salvage Co. v. Anderson's-Black Rock, Inc.*, 308 F. Supp. 941, 946 (S.D. W. Va. 1967), *aff'd*, 396 U.S. 57 (1969). The district court found that all the elements of the combination were well known in the prior art. Furthermore, the concept of using radiant heat to avoid joints in asphalt pavement was also well known in the construction field. The court, thus, found the patent invalid for obviousness. *Id.* at 944-46.

<sup>58</sup> 396 U.S. at 61-63.

<sup>59</sup> *Id.* at 61; see note 3 *supra*; text accompanying notes 17-19 *supra*.

<sup>60</sup> *Id.* at 59-60. See also 308 F. Supp. at 945-46.

<sup>61</sup> 396 U.S. at 61. The Court had previously discussed the synergistic concept without actually applying the specific term in *A&P*. 340 U.S. at 150-52; see text accompanying notes 28-31 *supra* & 65-66 *infra*.

<sup>62</sup> 396 U.S. at 62. The Court rejected any consideration of the commercial success of the

The consideration of synergism employed by the *Black Rock* Court had its roots in the pre-section 103 *A&P* case.<sup>63</sup> The *A&P* Court had reasoned that a combination in which each component performed the same function as before combination was unpatentable because it lacked invention.<sup>64</sup> The element necessary for a combination to be patentable was the additional contribution made by the components working cooperatively.<sup>65</sup> The *Black Rock* Court found the concept of a cooperative action or synergy among the components to be equally applicable to the section 103 nonobviousness requirement.<sup>66</sup> Thus, the *Black Rock* Court did not eliminate or even modify the *Graham* inquiry into obviousness. The *Black Rock* Court held that in the case of combination patents, after making the three *Graham* determinations, the finding of synergism in the combination was one indicia that the combination was nonobvious.<sup>67</sup>

In *Sakraida v. Ag Pro, Inc.*,<sup>68</sup> the Supreme Court again held that, against the backdrop of the three-prong obviousness test, a synergistic effect in a combination is an indication of obviousness. The *Sakraida* patent described a system for flushing manure from the floors of dairy barns. The system involved an arrangement of water tanks and water damming devices which delivered a cascading sheet of water to produce a more effective flushing than previous methods utilizing water delivered through pipes.<sup>69</sup> Following the *Graham* inquiries the *Sakraida* Court initially analyzed the prior art and found all the components of the combination to be old and well-known.<sup>70</sup> Consequently, the Court held that the combination was obvious to a person skilled in the pertinent art.<sup>71</sup> Relying on the warning of the *A&P* Court that combinations are inherently susceptible to a lack of invention, the *Sakraida* Court considered the absence of synergism in the ultimate legal decision that the patent was invalid.<sup>72</sup> The

---

combination as irrelevant if the combination is not innovative. The Court initially made the inquiries pursuant to the *Graham* analysis. The Court, however, subsequently considered the lack of a synergistic effect as one indication of the obviousness of the combination. *Id.* at 61-62.

<sup>63</sup> 340 U.S. 147 (1950); see text accompanying notes 28-31 *supra*.

<sup>64</sup> 340 U.S. at 153; see text accompanying notes 19-23 *supra*.

<sup>65</sup> 340 U.S. at 152; see text accompanying notes 115-123 *infra*.

<sup>66</sup> 396 U.S. at 61-62.

<sup>67</sup> *Id.* at 61; see *Sears, supra* note 2, at 83-84 (emphasizing that specific factual inquiries of *Graham* must always be followed).

<sup>68</sup> 425 U.S. 273 (1976).

<sup>69</sup> *Id.* at 274-75. The combination in issue was a combination of common elements. Additionally, the cascading effect of the water resulted from the action of gravity, a basic principle of science. Under 35 U.S.C. § 101 (1976), basic principles of science and phenomena of nature are not within the scope of patentable subject matter. See *O'Reilly v. Morse*, 56 U.S. (15 How.) 62 (1853).

<sup>70</sup> 425 U.S. at 280-81.

<sup>71</sup> *Id.* at 281-82.

<sup>72</sup> *Id.* The Seventh Circuit in *Republic Indus., Inc. v. Schlage Lock Co.*, 592 F.2d 963 (7th Cir. 1979), reasoned that the Supreme Court only mentioned synergism in the *Sakraida* decision because the Fifth Circuit had based its holding on the lack of synergism. The court in *Republic Industries* interpreted the Supreme Court's position in *Sakraida* as one of re-

Court, however, also assessed the combination in the *Hotchkiss* terms of "the work of a skillful mechanic, not that of an inventor."<sup>73</sup> Thus, even though the system provided a more effective result than previous combinations, the combining of the elements and the resultant effect of the combination was found to be the work of a skilled mechanic and, therefore, obvious to a person skilled in the pertinent art.<sup>74</sup>

The consideration of the presence of a synergistic effect by the Court in *Black Rock* and *Sakraida* has caused confusion among the circuit courts with regard to the proper standard to be applied in ascertaining the validity of a combination patent.<sup>75</sup> Circuit court treatment of the synergism concept has varied greatly, with some circuits finding that synergism is an additional requirement for nonobviousness, while other circuits totally reject any relevance of synergism to the nonobviousness standard. In *IT&T Corp. v. Raychem Corp.*,<sup>76</sup> the First Circuit held that a synergistic effect was an absolute requirement for finding a combination patent nonobvious under section 103.<sup>77</sup> The patent involved described a type of wire insulation consisting of a primary layer of cross-linked polyolefin and a secondary outer layer of a cross-linked polyvinylidene fluoride intended for use in transmission of electronic signals in aircraft. A necessary characteristic of the insulation not found in the polyolefin alone was that the insulation be exceptionally flame retardant. Based upon prior knowledge of the two components, the combination should not have been flame retardant. A chemical reaction occurred between the two components, however, which resulted in an unexpected flame retarding substance.<sup>78</sup> The First Circuit first made the required *Graham* inquiries, but held that the standard upon which the patent's validity turned was whether the result was greater than the sum of the effect of the parts. Finding that the evidence established a sufficient synergistic effect, the court upheld the validity of the patent.<sup>79</sup>

In contrast, the Seventh Circuit, followed by the Second<sup>80</sup> and Tenth

---

jecting the requirement of synergism. *Id.* at 968 n.17.

<sup>73</sup> 18 U.S. (11 How.) at 267; see 425 U.S. at 281-82; text accompanying notes 19-21 *supra*.

<sup>74</sup> 425 U.S. at 282. See generally *Sears*, *supra* note 2, at 101.

<sup>75</sup> See *Definition of Synergism*, *supra* note 2, at 1043; note 57 *supra*; text accompanying notes 77-109 *infra*.

<sup>76</sup> 538 F.2d 453 (1st Cir. 1976), *cert. denied*, 429 U.S. 886 (1977).

<sup>77</sup> *Id.* at 457.

<sup>78</sup> *Id.* at 455-56.

<sup>79</sup> *Id.* The First Circuit examined the combination of the two polymeric substances to determine if the idea of combining them was obvious. The court found that the initial addition of antimony oxide to the polyolefin was not obvious. Further, when the antimony oxide and the hydrogen fluoride of the polyvinylidene were combined in the insulation the compounds reacted to form the active flame retarding compound, antimony fluoride. Neither the reaction nor the physical characteristic of the reaction product could be predicted. Therefore, the court found the patent valid on the basis of a "sufficient synergistic effect." *Id.* at 457.

<sup>80</sup> The Second Circuit cited *Republic Indus. Inc., v. Schlage Lock Co.*, 592 F.2d 963 (7th

Circuits,<sup>81</sup> has totally rejected any consideration of synergism. In *Republic Industries, Inc. v. Schlage Lock Co.*,<sup>82</sup> the Seventh Circuit determined that synergism "does not bear any logical ipso facto relationship to obviousness."<sup>83</sup> Based upon an examination of Supreme Court case law, the Seventh Circuit held that the *Graham* analysis was the appropriate means for determining obviousness under section 103.<sup>84</sup> The court emphasized that both the *Black Rock* and *Sakraida* decisions ultimately turned on a finding of obviousness pursuant to a *Graham* type analysis and that neither decision explicitly stated that a synergistic effect was essential to a finding of nonobviousness.<sup>85</sup> The major flaw in the synergism concept cited by the Seventh Circuit was that synergism focuses on the result of the combination rather than the obviousness of making the combination.<sup>86</sup> The Seventh Circuit thus employed the standard *Graham* analysis to reach the conclusion that the patent was invalid for obviousness because it was no more than the work of a skillful mechanic.<sup>87</sup>

The Sixth Circuit in *Smith v. ACME General Corp.*<sup>88</sup> relied upon the Seventh Circuit's reasoning to find that synergism is not a requirement of nonobviousness but rather an allusion to the idea that an "unique essence" is required for a combination to be patentable.<sup>89</sup> Considering a patent involving door hardware hinges, the court made a determination of the scope of the prior art pursuant to the first prong of the *Graham* analysis. The court found that all of the elements of the hinge were well known in the prior art. Further, the court found that the current claim and the prior art differed only in the arrangement of the elements.<sup>90</sup> In a seemingly contradictory holding, the Sixth Circuit reasoned that because the combination of the elements did not exhibit synergism the claim lack-

Cir. 1979) with approval, holding that the analytical guidelines prescribed by *Graham* were the sole indicia relevant to a determination of obviousness. *Champion Spark Plug Co. v. Gyromat Corp.*, 603 F.2d 361, 369 (2d Cir. 1979).

<sup>81</sup> The Tenth Circuit also rejected any consideration of synergism in the determination of obviousness in *Plastic Container Corp. v. Continental Plastics, Inc.*, 607 F.2d 885 (10th Cir. 1979), *cert. denied*, 100 S. Ct. 672 (1980). The Tenth Circuit based its rationale for total reliance upon the *Graham* inquiry on *Republic Industries* and *Champion Spark Plug*. See 592 F.2d at 970-71. See also Rich, *supra* note 33, at 41-44.

<sup>82</sup> 592 F.2d 963 (7th Cir. 1979).

<sup>83</sup> *Id.* at 971.

<sup>84</sup> *Id.* at 970-71.

<sup>85</sup> *Id.* at 968.

<sup>86</sup> *Id.* at 970-71.

<sup>87</sup> *Id.* at 974.

<sup>88</sup> 614 F.2d 1086 (6th Cir. 1980).

<sup>89</sup> *Id.* at 1094-95. The Sixth Circuit adopted two major points of the Seventh Circuit's reasoning in *Republic Industries*. The *Smith* court agreed that the concept of synergism has no direct relationship to obviousness. See text accompanying note 82 *supra*. Furthermore, the court cited approvingly, the *Republic Industries* determination that the concept of synergism focuses on the combination after the fact, while obviousness should be determined at the time the combination is made. See text accompanying note 83 *supra*.

<sup>90</sup> *Smith v. ACME Gen. Corp.*, 614 F.2d 1086, 1091-93 (6th Cir. 1980).

ed the unique essence necessary to patentability under section 103.<sup>91</sup> Apparently, the court merely substituted a more ambiguous standard of an unique essence for the already confusing synergism concept.

In *Sims v. Mack Trucks, Inc.*,<sup>92</sup> the Third Circuit did not reach the issue of whether synergism was required to uphold the validity of a combination patent. The patent at issue involved a front discharge concrete mixer which was constructed by reversing the mixer drum on an ordinary concrete mixer.<sup>93</sup> The court relied upon the *Black Rock* and *Sakraida* Courts' recognition of the constitutional prohibition against removing knowledge from the public domain by the issuance of a patent.<sup>94</sup> Since the Third Circuit held that under a strict *Graham* analysis the patent was invalid for obviousness, a consideration of synergism was unnecessary to the decision. The court, however, found that a proper application of the *Graham* test required a consideration of whether a combination functioned in an innovative manner.<sup>95</sup> The Third Circuit apparently substituted an "innovative manner" for synergism as an indicia of nonobviousness, similar to the Sixth Circuit's substitution of an unique essence.

The Fourth Circuit thus far has avoided any direct consideration of the synergism concept. Justice Clark, sitting by designation following his retirement from the Supreme Court, authored the Fourth Circuit's most recent consideration of patent validity in light of section 103.<sup>96</sup> Applying a strict *Graham* analysis to a patent describing a warp knitted elastic fabric, the court found the combination to be obvious and not patentable.<sup>97</sup> The court engaged in a limited discussion of the standard to be applied and subsequently made the appropriate *Graham* inquiries as to the scope of the prior art and the difference between the current claim and two previous patents which contained the elements of the disputed patent.<sup>98</sup> The court found that the difference between the claim of the patent and the prior art was not great enough to support a finding of nonobviousness.<sup>99</sup> The court thus found it unnecessary to reach the issue

---

<sup>91</sup> *Id.* at 1095.

<sup>92</sup> 608 F.2d 87 (3d Cir. 1979), *cert. denied*, 100 S. Ct. 1319 (1980).

<sup>93</sup> *Id.* at 88.

<sup>94</sup> *Id.* at 90; *see text* accompanying notes 3 & 18-21 *supra* & 113-14 *infra*.

<sup>95</sup> 608 F.2d at 91.

<sup>96</sup> *Deering Milliken Res. Corp. v. Beaunit Corp.*, 538 F.2d 1022 (4th Cir.), *cert. denied*, 426 U.S. 936 (1976). Justice Clark was the author of the Supreme Court opinion in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), but had retired from the Supreme Court before either the *Black Rock* or *Sakraida* opinions were issued. Arguably, Justice Clark, by remaining silent on the synergism issue, was expressing his opinion that the *Graham* inquiries were sufficient for a proper determination of obviousness.

<sup>97</sup> 538 F.2d at 1026.

<sup>98</sup> *Id.* at 1023-25.

<sup>99</sup> The Fourth Circuit examined the prior art and found that a prior patent fully disclosed the patent claim at issue. The court finding that the fabrics would be identical if one inelastic thread were removed from the invention in the prior patent held that this difference was not significant enough to warrant a patent. *Id.* at 1026.

of synergism as an indication of obviousness.<sup>100</sup>

The Eighth and Ninth Circuits have applied the synergism concept consistently with the *Black Rock* and *Sakraida* opinions. The Eighth Circuit in *Reinke Manufacturing Co. v. Sidney Manufacturing Corp.*,<sup>101</sup> strictly followed the *Graham* analysis in determining the validity of a patent for a circular irrigation system. The court initially found that the relevant standard of obviousness under section 103 is set forth in *Graham*. The Eighth Circuit, finding that a mere improvement over the prior art is not necessarily patentable,<sup>102</sup> recognized the great difficulty in examining a combination patent for obviousness or invention.<sup>103</sup> The court then held that synergism was one factor which may be considered against the background developed by the *Graham* inquiries in the court's final determination of obviousness.<sup>104</sup> The court reasoned that in examining a combination patent, both the actual making of the combination as well as the resultant effect were subject to the determination of obviousness.<sup>105</sup>

In *Satco, Inc. v. Transequip, Inc.*,<sup>106</sup> the Ninth Circuit approved the district court's reliance upon the lack of a synergistic result by holding the patent invalid for obviousness.<sup>107</sup> The Ninth Circuit emphasized that a strict adherence to the factual inquiries of *Graham* was essential to the consideration of patent validity relative to section 103. The Ninth Circuit found the district court, having made the necessary *Graham* inquiries, was justified in considering the lack of a synergistic effect in making the ultimate obvious-nonobvious determination.<sup>108</sup> Thus, the Ninth Circuit determined that synergism was a proper indication of obviousness when considered in relation to the factual inquiries of *Graham*.<sup>109</sup>

The varied responses of the circuits have resulted from an attempt to develop a definite standard from the Supreme Court's several references to synergism.<sup>110</sup> In *Black Rock* and *Sakraida* the Court initially made the

<sup>100</sup> *Id.*

<sup>101</sup> 594 F.2d 644 (8th Cir. 1979).

<sup>102</sup> *Id.* at 646; see *Airlite Plastics Co. v. Plastilite Corp.*, 526 F.2d 1078, 1082 (8th Cir. 1975), *cert. denied*, 425 U.S. 938 (1976).

<sup>103</sup> 594 F.2d at 652.

<sup>104</sup> *Id.* at 648.

<sup>105</sup> *Id.* at 648, 651-52.

<sup>106</sup> 594 F.2d 1318 (9th Cir. 1979). The patent at issue in *Satco* involved an all metal cargo pallet for use with aircraft. The difference between this cargo pallet and previously patented pallets was that the center panel was made of flexible aluminum instead of an easily torn, laminated material. The *Satco* patent also claimed the advantages of vertical and horizontal flexibility resulting from the all aluminum construction. *Id.* at 1320.

<sup>107</sup> *Id.* at 1319-20.

<sup>108</sup> *Id.* The Ninth Circuit reaffirmed the *Satco* decision in *Palmer v. Orthokinetics, Inc.*, 611 F.2d 316 (9th Cir. 1980). The court required that the *Graham* inquiries be strictly observed but found that synergism was one factor to be considered in the final determination of obviousness. *Id.* at 323.

<sup>109</sup> 594 F.2d at 1322.

<sup>110</sup> The confusion among the circuit courts regarding synergism has afforded the Supreme Court the opportunity to define synergism clearly and its relationship to obviousness in a meaningful way. Unfortunately, the Court thus far has declined to address the issue by

factual *Graham* inquiries.<sup>111</sup> Without explaining the role a synergistic effect played in the final determination of obviousness, the Court examined the combination involved in each case for a synergistic effect.<sup>112</sup> The Supreme Court implicitly defined synergism as a combined effect that is greater than the sum of the effects of the individual parts.<sup>113</sup> The Court developed this inquiry out of a concern that, eventually, any mechanic skilled in the art could discover the arrangement of old elements claimed in a combination patent and, therefore, only some new result could save the combination from being obvious.<sup>114</sup>

The *Sakraida* and *Black Rock* opinions did not definitively develop the concept of synergism, and thus, the Court is free to further its initial development of a more workable concept of synergism as one indicia of nonobviousness.

The Court should focus on the cooperative action of the elements in a combination rather than the result of the combination. The resulting-effect definition of synergism focuses on the ultimate result achieved by the combination.<sup>115</sup> Section 103, however, requires that the subject matter of a patent be nonobvious.<sup>116</sup> The nonobviousness inquiry should be directed to the making of the combination, not the resultant effect of the combination.<sup>117</sup> If several elements are combined in such a way that they work

---

denying petitions for certiorari in all cases in which the determination of obviousness has been framed to include a consideration of synergism.

In the first four months of 1980 the Supreme Court declined three opportunities to define the precise role that synergism should play in the determination of obviousness under § 103. See *Champion Spark Plug Co. v. Gyromat Corp.*, 603 F.2d 361 (2d Cir. 1979), *cert. denied*, 100 S. Ct. 1276 (1980); *Sims v. Mack Truck Corp.*, 608 F.2d 87 (3d Cir. 1979), *cert. denied*, 100 S. Ct. 1319 (1980); *Osmose Wood Preserving Co. v. City of Los Angeles*, 605 F.2d 562 (9th Cir. 1979), *cert. denied*, 100 S. Ct. 1597 (1980).

<sup>111</sup> See 396 U.S. at 59-60; 425 U.S. at 278-79; text accompanying notes 43-53 *supra*.

<sup>112</sup> See text accompanying notes 54-73 *supra*.

<sup>113</sup> See text accompanying notes 76-109 *supra*. See also *Definition of Synergism*, *supra* note 2, at 1051. Judge Giles Rich of the United States Court of Custom and Patent Appeals, is extremely critical of the Court's dictum in *Black Rock*. Judge Rich interpreted Justice Douglas' reference to synergism as superfluous to the decision which rested completely upon the obvious-nonobvious standard. Judge Rich, however, predicted that trial lawyers and lower courts would place an undue amount of emphasis on the unfortunate mention of the overly severe synergism standard. Rich, *supra* note 33, at 41-45. See also Schneider, *Non-Obviousness, the Supreme Court, and the Prospects for Stability*, 60 J. PAT. OFF. SOC'Y 304 (1978) [hereinafter cited as Schneider].

<sup>114</sup> See *Sears*, *supra* note 1, at 98. *Sears* argues that a synergistic effect is significant to the second prong of the *Graham* inquiry. Viewed in this manner, a synergistic effect can save a combination of old elements from being insignificantly different from the scope of prior art. *Id.*

<sup>115</sup> The district court decision in *Black Rock* quoted the *A&P* decision in finding that for a combination to be patentable, the "concert of known elements must contribute something." The district judge relied on the fact that the individual elements functioned no differently when combined than when each element functioned separately in succession in making the determination that the patent was invalid for obviousness. 308 F. Supp. at 946.

<sup>116</sup> See 35 U.S.C. § 103 (1976); note 7 *supra*.

<sup>117</sup> See *Republic Indus., Inc. v. Schlage Lock Co.*, 592 F.2d at 969-71.

together effectively and in an inventive manner, the very act of combining the elements should meet the nonobvious requirement of section 103. Examining a combination for synergism, defined as the elements functioning interdependently or concertedly, however, would focus on the manner in which the elements are combined.

This focus on the manner in which the elements work together also would incorporate the constitutional limitation against removing existing knowledge from the public domain.<sup>118</sup> Recognizing the need for special guidelines for combination patents, the Court in *A&P* cautioned that when a combination is merely an aggregation of known elements, a patent for the combination would unjustifiably withdraw knowledge from the public domain.<sup>119</sup> The *A&P* Court thus recognized that granting a patent for an obvious aggregation of elements would frustrate the constitutional intent against granting monopolies for mere improvements.<sup>120</sup> The Court implicitly found that since the elements of the combination functioned independently rather than concertedly, the aggregation was insufficient to meet the requirements of patentability.<sup>121</sup>

In developing a proper concept of synergism, the Court should rule that a combination in which the elements exhibit interrelated or concerted action demonstrates synergism. A cooperative action of elements is one valid indication that the combination is not obvious under section 103. The three-prong *Graham* test, however, should be retained as the primary analysis of nonobviousness.<sup>122</sup> If the combination is clearly non-obvious on the basis of the *Graham* test, a finding of synergism should not be required for patentability. Moreover, the presence of synergism in a combination should not compel a finding of nonobviousness if the making of the combination is clearly obvious to one skilled in the art.<sup>123</sup> Synergism can be a useful concept in patent law if the Supreme Court develops a clear, workable definition of the concept and explicitly states that the presence of synergism is one indication, but not an absolute requirement, of section 103 nonobviousness.

KATHLEEN MARIE FENTON

---

<sup>118</sup> See text accompanying notes 4-5 *supra*.

<sup>119</sup> 340 U.S. at 152.

<sup>120</sup> See text accompanying note 59 *infra*. But see *Schneider*, *supra* note 85, at 321-25.

<sup>121</sup> 340 U.S. at 151-52.

<sup>122</sup> See *Sims v. Mack Truck Corp.*, 608 F.2d 87 (3d Cir. 1979); *Deering Milliken Res. Corp. v. Beaunit Corp.*, 538 F.2d 1022 (4th Cir. 1976); text accompanying notes 92-100 *supra*.

<sup>123</sup> See *Sears*, *supra* note 1, at 98 n.74.