

CHIUMINATTA CONCRETE CONCEPTS INC. V.  
CARDINAL INDUSTRIES, INC. &  
DAWN EQUIPMENT CO. V. KENTUCKY FARMS, INC.

By Jason Schultz

Last year, the Supreme Court affirmed the doctrine of equivalents (“DOE”) in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*<sup>1</sup> and put to rest speculations of its demise in the patent law.<sup>2</sup> The Court stated, however, that the doctrine, as it has come to be applied in the last 50 years, “has taken on a life of its own, unbounded by the patent claims.”<sup>3</sup> Concerned that broad application of the DOE might undermine the definitional and public-notice functions of the statutory claiming requirement,<sup>4</sup> the Court imposed several substantive restrictions on the doctrine, including prosecution history estoppel and element-by-element analysis.<sup>5</sup>

The Court also suggested that, when appropriate, district courts could impose further restrictions on the doctrine by granting summary judgment and judgment as a matter of law (“JMOL”), and through the use of special verdict forms for juries.<sup>6</sup> It was left to the Federal Circuit to determine the appropriate circumstances for such limitations.<sup>7</sup>

In the last year, the Federal Circuit has used several cases to impose such restrictions on the DOE.<sup>8</sup> Among these were *Dawn Equipment Co. v.*

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1. 520 U.S. 17 (1997).

2. *See id.* at 21.

3. *Id.* at 28-29.

4. *See* 35 U.S.C. § 112 (1998).

5. *See Warner-Jenkinson*, 520 U.S. at 29, 40-41. Prosecution history estoppel bars a patentee from later recovering subject matter under the DOE that was surrendered during prosecution. *See id.* at 40-41. Element-by-element analysis requires that “[e]ach element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole.” *Id.*

6. *See Warner-Jenkinson*, 520 U.S. at 39 n.8.

7. *See id.*

8. *See e.g.*, *Vehicular Technologies Corp v. Titan Wheel International Inc.*, 141 F.3d 1084, 46 U.S.P.Q.2d (BNA) 1257 (Fed. Cir. 1998) (holding that the written description of the invention can limit the range of equivalent functions available under the DOE); *Brunswick Corp v. U.S.*, 152 F.3d 946, 46 U.S.P.Q.2d (BNA) 1446 (Fed. Cir. 1998) (holding that subject matter disclosed in the specification but not claimed is dedicated to the public and not recoverable under the DOE).

*Kentucky Farms, Inc.*<sup>9</sup> and *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*<sup>10</sup> In *Dawn* and *Chiuminatta*, the Federal Circuit restricted the DOE in order to clarify the often confusing overlap of means-plus-function equivalents<sup>11</sup> and DOE equivalents, eliminating the DOE when the two equivalents are coextensive. It also eliminated availability of the DOE for technologies in existence when a patent issues but not disclosed in the specification of the patent. The *Dawn* decision also included three additional views speculating as to future restrictions on overlaps between the two analyses.

## I. BACKGROUND

### A. The Doctrine of Equivalents

Patents create incentives for invention.<sup>12</sup> By offering the reward of excluding others from making, using, selling, offering for sale, or importing a patented invention,<sup>13</sup> patents allow creators of new devices and processes to share their innovations with the world in exchange for a time-limited ownership. Underlying this system of disclosure and reward is the implicit assumption that the world will know exactly what the invention is in order to determine what rights the patent protects.<sup>14</sup> To support this assumption, the Patent and Trademark Office (PTO) publishes patents to

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9. 140 F.3d 1009, 46 U.S.P.Q.2d (BNA) 1109 (Fed. Cir. 1998).

10. 145 F.3d 1303, 46 U.S.P.Q.2d (BNA) 1752 (Fed. Cir. 1998).

11. Means-plus-function claims describe patented inventions by referring to what they do (the function) in the language of the claim and giving an example of how they do it (the means) in the specification. See 35 U.S.C. 112 ¶ 6 (1998) ("An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."). A combination describes two separate but dependent elements, such as: a tool comprising: a blade; and a handle. See also *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 27 (1997) ("Thus, an applicant can describe an element of his invention by the result accomplished or the function served, rather than describing the item or element to be used (e.g., 'a means for connecting Part A to Part B,' rather than 'a two-penny nail').").

12. See U.S. CONST. art I., § 8, cl. 8 ("Congress shall have power ... to promote the Progress of Science and the useful Arts....").

13. See 35 U.S.C. § 271(a) (1998).

14. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29-30 (1997). See generally DONALD S. CHISUM, CHISUM ON PATENTS § 8.02[3] (1996); *Merrill v. Yeomans*, 94 U.S. 568 (1877).

alert the world to intellectual property that is off limits from that day forth without consent of the owner.<sup>15</sup>

Yet there is a problem with enforcing this system. Often a given invention does not provide the sole means for arriving at the result it achieves. Particularly when the patent proves lucrative, other devices or processes may spring up that perform similar functions or produce similar results. These inventions push up against the walls of the patent claim, calling out for courts to define the difference between infringement and neighborly juxtaposition.

This problem is particularly acute in industries where innovation occurs at a rapid pace.<sup>16</sup> Unless policed carefully, devices that perform similar functions and achieve similar results to patented inventions threaten to undermine the exclusivity of the patentee's rights and thereby potentially diminish the value of obtaining the patent in the first place. Such alternative technologies cannot always be anticipated by inventors in the filing of their claims and thus may not be included in the literal scope of the patent. Therefore, to distinguish between those new products that genuinely escape infringement and those that encroach on the patent rights of others, U.S. courts have created an equitable doctrine—the doctrine of equivalents.<sup>17</sup>

### 1. *Finding infringement under the doctrine*

Ordinarily, patent infringement suits are based on literal infringement, which occurs when an accused product falls exactly within the patent's claims.<sup>18</sup> There are, however, many situations where an accused product would correspond exactly to the patent claims but for insubstantial differences between the two. Under these circumstances, a patent owner may sue for infringement under the doctrine of equivalents.<sup>19</sup>

The Supreme Court recently explained the application of the DOE. In *Warner-Jenkinson*, the Court held that an accused device may infringe un-

15. See 35 U.S.C. § 151 (1998).

16. See, e.g., *Texas Instruments, Inc. v. United States Int'l Trade Comm'n*, 805 F.2d 1558, 1570, 231 U.S.P.Q. (BNA) 833, 840 (Fed. Cir. 1986) (“[Texas Instruments] argues that in ‘fast-moving’ arts infringers should not be permitted to avoid liability by arguing that the improved elements substituted [for the patented elements don’t infringe].... [T]o fail to find infringement under these circumstances ‘will emasculate electronics patents....’”).

17. See *Warner-Jenkinson*, 520 U.S. at 21; *Winans v. Denmead*, 56 U.S. (15 How.) 330 (1853) (establishing the DOE). See also *Graver Tank & Mfg. Co. v. Linde Air Products*, 339 U.S. 605 (1950) (reaffirming the DOE).

18. See CHISUM, *supra* note 14, § 16.02[1][a][ii].

19. See CHISUM, *supra* note 14, § 18.04.

der the doctrine of equivalents if, at the time of infringement,<sup>20</sup> each and every claimed element<sup>21</sup> or its equivalent was present in the accused device.<sup>22</sup> Courts can look to three recognized tests to help determine this: “insubstantial differences,”<sup>23</sup> “interchangeability,”<sup>24</sup> and “function-way-result.”<sup>25</sup>

The central test applied in determining equivalence is the insubstantial differences test.<sup>26</sup> This test requires the trier of fact to determine if the differences between the accused product or process and each element of the patent claim are merely insubstantial.<sup>27</sup> Similarly, the interchangeability test asks whether one skilled in the art of the invention would conclude that the aspects that differentiate the accused device or process from the patent are simply part of a selection of choices, none of which offer a significant advantage over others.<sup>28</sup> Under the function-way-result test, courts consider whether the accused device performs substantially the same function in substantially the same way to achieve substantially the same

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20. See *Warner-Jenkinson*, 520 U.S. at 37.

21. The Supreme Court and the Federal Circuit often interchange the words “limitation” and “element” regarding the individual boundaries of patent claims. See *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1015 n.1, 46 U.S.P.Q.2d (BNA) 1109, 1112 n.1 (Fed. Cir. 1998). For simplicity and consistency, I will use element.

22. See *Warner-Jenkinson*, 520 U.S. at 29. The general inquiry to be undertaken in such a comparison is: “Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?” *Id.* at 40. Courts should also consider the context of the patent, the prior art, and the particular circumstances of the case. See *id.* at 24. Moreover, “[e]quivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum.” *Id.* at 24-25.

23. *Id.* at 39-40.

24. *Id.* at 24-25.

25. *Id.* at 39-40.

26. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1521- 22, 35 U.S.P.Q.2d (BNA) 1641, 1648 (Fed. Cir. 1995).

27. “[W]hen there are no substantial differences between the claimed and accused products or processes, ‘they are the same’ in the eyes of the patent law.” *Id.* at 1528, 35 U.S.P.Q.2d at 1653 (citations omitted). While the insubstantial differences test has been approved by both the Federal Circuit and the Supreme Court, it has also been criticized by the Supreme Court as offering “little additional guidance as to what might render any given difference ‘insubstantial.’” See *Warner-Jenkinson*, 520 U.S. at 40.

28. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 24-25 (1997) (citing *Graver Tank & Mfg. Co. v. Linde Air Products*, 339 U.S. 605, 609 (1950)). For example, consider a claim element for a furniture construction patent that reads a means for connecting two pieces of wood, and describes a nail as the corresponding means in the specification. If one skilled in the art of carpentry would just as easily use a screw to connect the two pieces of wood, the two could be considered interchangeable and therefore equivalent.

result as the element in the patent claim.<sup>29</sup> The Court in *Warner-Jenkinson* directed the Federal Circuit to decide when and how to apply each test.<sup>30</sup>

## II. THE CASES

### A. Coextensive Equivalents and Contemporary Technologies:

Chiuminatta Concrete Concepts, Inc., Edward Chiuminatta, and Alan Chiuminatta (“Chiuminatta”) own a patent (“the ’499 patent”)<sup>31</sup> relating to an apparatus for cutting concrete before it has completely cured to a hardened condition.<sup>32</sup> The patent describes a rotary saw with two significant features.<sup>33</sup> First, the leading edge of the saw rotates upward, preventing displaced wet concrete from accumulating in the groove created by the saw (thereby increasing the rate of cutting and eliminating jamming of the blade).<sup>34</sup> Second, the saw has an attached flat support surface which applies downward pressure to the point where the saw blade emerges from the concrete in order to prevent the blade from damaging the concrete (commonly referred to as raveling, chipping, spalling, or cracking).<sup>35</sup>

The relevant element of the ’499 patent appears in means-plus-function language and reads:

means connected to the saw for supporting the surface of the concrete adjacent the leading edge of the cutting blade to inhibit

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29. See *Hilton Davis*, 62 F.3d at 1518, 35 U.S.P.Q.2d at 1649. For example, consider a claim element for a pen that reads a means for permanently writing words in ink on paper surfaces, and describes a ball-point pen as the corresponding structure. A felt-tip pen would infringe such a patent under the DOE if it performed substantially the same function (writing words on paper surfaces) in substantially the same way (applying ink to paper) to produce substantially the same result (words permanently written on paper). In *Warner-Jenkinson*, the Supreme Court approved of the function-way-result test for analyzing mechanical inventions. See *Warner-Jenkinson*, 520 U.S. at 39.

30. See *Warner-Jenkinson*, 520 U.S. at 40. (“We expect the Federal Circuit will refine the formulation of the test for equivalence in the orderly course of case-by-case determinations, and we leave such refinements to that court’s sound judgment in the area of its special expertise.”) Prior to *Warner-Jenkinson*, however, the Federal Circuit had suggested that choosing which test to apply and how dispositive it should be were normally questions of fact for the judge or jury to assess. See *Hilton Davis*, 62 F.3d at 1520-22, 35 U.S.P.Q.2d 1648-49. See also *Graver Tank*, 339 U.S. at 609.

31. See U.S. Pat. B1 5,056,499 (Issued Oct. 15, 1991).

32. See *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1305, 46 U.S.P.Q.2d (BNA) 1752, 1753 (Fed. Cir. 1998).

33. See *id.*

34. See *id.*

35. See *id.* at 1305, 46 U.S.P.Q.2d at 1753-54.

chipping, spalling, or cracking of the concrete surface during cutting.<sup>36</sup>

The structure disclosed in the specification corresponding to the "means connected" element is a skid plate.<sup>37</sup> According to the specification:

The saw blade extends through a ... slot in the skid plate, in order to project into and cut the concrete below the skid plate. The dimensions of the slot in the skid plate are selected to support the concrete immediately adjacent the saw blade so as to prevent cracking of the concrete as it is cut.<sup>38</sup>

Cardinal Industries, Inc. and Green Machine Corporation (Cardinal) manufacture and sell the accused device, called the Green Machine saw.<sup>39</sup> This saw also has a rotary blade that rotates upward.<sup>40</sup> However, instead of a flat support surface to apply downward pressure to the concrete, the Green Machine employs two small wheels mounted adjacent to the leading edge of the saw blade.<sup>41</sup> The wheels also support the surface of the concrete while the blade cuts in order to prevent raveling, chipping, spalling or cracking.<sup>42</sup>

Chiuminatta sued Cardinal for both literal and DOE infringement.<sup>43</sup> The district court found the accused device literally infringed the claimed invention, and granted summary judgment for Chiuminatta.<sup>44</sup> Cardinal appealed and the Federal Circuit granted review.<sup>45</sup>

### 1. *The Federal Circuit decision*

The Federal Circuit held that determination of the claimed function<sup>46</sup> in a means-plus-function claim and of the corresponding structure in the

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36. *Id.* at 1305-06, 46 U.S.P.Q.2d at 1754.

37. *See id.*

38. U.S. Patent No. 5,056,499, col. 3, ll. 8-27, issued Oct. 15, 1991.

39. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1306, 46 U.S.P.Q.2d (BNA) 1752, 1754 (Fed. Cir. 1998).

40. *See id.*

41. *See id.*

42. *See id.*

43. *See id.* at 1305, 46 U.S.P.Q.2d at 1754.

44. *See id.* at 1307, 46 U.S.P.Q.2d at 1755.

45. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1307, 46 U.S.P.Q.2d (BNA) 1752, 1755 (Fed. Cir. 1998).

46. *See id.* at 1308, 46 U.S.P.Q.2d at 1755 (citing *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 46 U.S.P.Q.2d (BNA) 1169 (Fed. Cir. 1998) (en banc) and *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 U.S.P.Q.2d (BNA) 1321, 1328-29 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996)).

specification<sup>47</sup> were matters of claim construction and therefore questions of law, reviewable de novo. The court then stated that the function outlined in the claim was “supporting the surface of the concrete adjacent to the leading edge of the cutting blade to inhibit chipping, spalling, or cracking of the concrete surface during cutting”<sup>48</sup> and the corresponding means was the skid plate.<sup>49</sup> Having identified the appropriate function and structure of the claim, the court held that the wheels of the Green Machine were not equivalent structures to the skid plate because the differences between the two were substantial and reversed the district court’s ruling.<sup>50</sup>

a) Coextensive equivalents

Although the district court did not reach the issue of infringement under the DOE because it found literal infringement, the Federal Circuit went on to consider this issue.<sup>51</sup> The court held that “although an equivalence analysis under [section] 112 ¶ 6 and the doctrine of equivalents are not [completely] coextensive (for example, [section] 112 ¶ 6, requires identical, not equivalent function) and have different origins and purposes, their tests for equivalence are closely related” and thus apply similar analyses.<sup>52</sup> Because structural equivalents are coextensive to both literal and DOE infringement of a means-plus function claim, the court held that “a finding of a lack of literal infringement for lack of equivalent structure ... may preclude a finding of equivalence under the

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47. *See id.* at 1308, 46 U.S.P.Q.2d at 1756 (citing *B. Braun Med., Inc. v. Abbott Lab.*, 124 F.3d 1419, 1424-25, 43 U.S.P.Q.2d (BNA) 1896, 1900 (Fed. Cir. 1997)); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977 n.8, 34 U.S.P.Q.2d (BNA) 1321, 1327 n.8 (Fed. Cir. 1995). The court left open the question of whether the inquiry as to whether a particular accused structure is equivalent to the disclosed structure is a question of law or fact. *See id.* at 1309, 46 U.S.P.Q.2d at 1756. *See also Markman*, 52 F.3d at 977 n.8, 34 U.S.P.Q.2d at 1327 n.8.

48. *Chiuminata*, 145 F.3d at 1308, 46 U.S.P.Q.2d at 1756.

49. *See id.* The court then concluded that the district court had erroneously identified the corresponding structure in broad functional language as “a support surface or plate ... in movable contact with the surface of the concrete,” rather than as a physical structure, the skid plate. *Id.*

50. *See id.* at 1308, 46 U.S.P.Q.2d at 1757 (stating that the accused device has soft compressible wheels that are round and roll over the concrete while the skid plate is hard, predominantly flat and skids along the concrete).

51. *See Chiuminata Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1310, 46 U.S.P.Q.2d (BNA) 1752, 1757 (Fed. Cir. 1998).

52. *Id.* (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 28 (1997)).

doctrine of equivalents” as a matter of law.<sup>53</sup> For example, the moveable wheels of the Green Machine were not equivalent to the plaintiff’s skid plate structure under a literal infringement analysis, therefore the court held they could not be found equivalent under the DOE.<sup>54</sup>

b) Contemporary technologies

The court then discussed another restriction on the DOE. The court held that technological advancements arising after issuance of a patent may qualify as equivalents under the DOE but not as structural equivalents.<sup>55</sup> Conversely, in cases where the technology of the accused device was available at the time the patent issued (as in *Chiuminatta*), “a finding of non-equivalence for [section] 112 ¶ 6 ... should preclude a contrary finding under the doctrine of equivalents.”<sup>56</sup> In other words, any technology contemporary to the patented invention cannot infringe under the DOE if it is not disclosed as a structural equivalent. The moveable wheels in Cardinal’s device were readily available when the ’499 patent issued. Therefore the court’s rejection of literal infringement precluded infringement under the DOE.<sup>57</sup>

**B. Jury Confusion, Special Verdicts, and the Question of General Applicability:**

Dawn Equipment Company (“Dawn”) manufactures an apparatus for adjusting farm implements.<sup>58</sup> Farm implements typically consist of a pair of wheels with sharp teeth attached to the front of a planting machine.<sup>59</sup> As the machine moves forward, the wheels spin and clear the path for the planter, allowing for smooth and consistent seeding.<sup>60</sup>

Dawn received U. S. Patent No. 5,129,282 (“the ’282 patent”), entitled “Mechanism for Selectively Repositioning a Farm Implement.”<sup>61</sup> The

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53. *Id. See also id.* at 1311, 46 U.S.P.Q.2d at 1758 (citing *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1018, 46 U.S.P.Q.2d 1109, 1115 (Fed. Cir. 1998) (Plager, J., additional view)).

54. *See id.* at 1311, 46 U.S.P.Q.2d at 1758.

55. *See id.* at 1310, 46 U.S.P.Q.2d at 1758. The court, however, did not explore the practical application of this rule, because the case before it did not deal with later-developed technologies. *See id.* at 1311, 46 U.S.P.Q.2d at 1758.

56. *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1311, 46 U.S.P.Q.2d (BNA) 1752, 1758 (Fed. Cir. 1998).

57. *See id.*

58. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1010, 46 U.S.P.Q.2d (BNA) 1109, 1110 (Fed. Cir. 1998).

59. *See id.*

60. *See id.*

61. *Id.*

relevant claim element for the device was presented in means-plus-function form.<sup>62</sup> It stated:

means for locking the connecting means in one of the first and second positions and for selectively releasing the connecting means to allow the connecting means to be slid into the other of the first and second positions therefor.<sup>63</sup>

The device disclosed in the specification was a spring-loaded rotating pin and slot configuration with a handle to facilitate compression and rotation.<sup>64</sup> To adjust the height of the implement from the raised position to the lowered position, the user pushes the handle downward against the spring so that the pin moves adjacent to the slot and then turns the handle to rotate the pin clockwise into the lowered position.<sup>65</sup>

Kentucky Farms Incorporated (“Kentucky Farms”) also makes an apparatus for adjusting farm implements.<sup>66</sup> Kentucky Farms’ method of adjustment consists of a multi-holed connecting bar which telescopes within a rectangular sleeve, connected by a removable pin.<sup>67</sup> To adjust the height of the implement, the user removes the pin, slides the sleeve up or down over the connecting bar to the new height and reinserts the pin through both bar and sleeve.<sup>68</sup>

Dawn sued Kentucky Farms for infringement of the ’282 patent both literally and under the DOE.<sup>69</sup> At trial, the judge submitted interrogatories to the jury asking for simple yes or no answers on literal and/or DOE infringement.<sup>70</sup> The jury returned its verdict, answering “no” to literal infringement and “yes” to DOE infringement.<sup>71</sup> Kentucky Farms filed a motion for JMOL on the DOE verdict.<sup>72</sup> The trial judge denied the motion.<sup>73</sup> Kentucky Farms then appealed the decision to the Federal Circuit.<sup>74</sup>

62. *See id.* at 1010, 46 U.S.P.Q.2d at 1111.

63. *Id.* at 1011, 46 U.S.P.Q.2d at 1110.

64. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1011, 46 U.S.P.Q.2d (BNA) 1109, 1110 (Fed. Cir. 1998).

65. *See id.* at 1010, 46 U.S.P.Q.2d at 1110.

66. *See id.* at 1012, 46 U.S.P.Q.2d at 1111.

67. *See id.*

68. *Id.* at 1014, 46 U.S.P.Q.2d at 1111.

69. *See id.* at 1010, 46 U.S.P.Q.2d at 1110.

70. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1010, 46 U.S.P.Q.2d (BNA) 1109, 1110 (Fed. Cir. 1998).

71. *Id.*

72. *See id.*

73. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1010, 46 U.S.P.Q.2d (BNA) 1109, 1110 (Fed. Cir. 1998).

74. *See id.*

### 1. *The Federal Circuit decision*

In comparing the patent and the accused device,<sup>75</sup> the court held that the differences between the two were substantial.<sup>76</sup> The court stated that the specification of the '282 patent distinguished the patented invention from prior art systems that used "multi-hole pinned height adjustment" mechanisms.<sup>77</sup> Also, the fact that the '282 patent itself touted the invention as superior over multi-holed pin systems by reducing adjustment time, preventing misadjustment and eliminating the potential loss of the pins, supported a finding of non-equivalence.<sup>78</sup>

In reaching its conclusion, the court assumed that it was proper to apply the DOE to a claim drafted in means-plus-function form.<sup>79</sup> It noted, however, that such an assumption is not settled law and referred to the additional opinions of Judges Plager, Newman, and Michel discussing the subject in detail.<sup>80</sup>

#### a) Judge Plager's additional view

In the first of three additional views on the applicability of the doctrine of equivalents to means-plus-function claims, Judge Plager noted that this area of law is both "confused and confusing," especially to juries.<sup>81</sup> Judge

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75. *See id.* at 1015, 46 U.S.P.Q.2d at 1113. Assuming the plaintiff's construction, the court found the relevant function claimed in the '282 patent to be "locking and releasing." *Id.* The corresponding structure included a rotatable shaft, a metal pin, and a slot for the pin to fit within. *See id.*

76. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1016, 46 U.S.P.Q.2d (BNA) 1109, 1113-14 (Fed. Cir. 1998). For example, the patented device is permanently fixed to its rotatable shaft and is locked into and released from engagement with the slot by rotating the shaft with a handle. *See id.* Kentucky Farms' device requires that the pin which serves as the attaching agent not be attached to anything permanently and be inserted in and removed from the holes in the sleeve by hand. *See id.* Additionally, the court found that while the functions of the two apparatuses were the same (i.e., locking and releasing a connecting member), the ways they functioned were not—one compression and rotation, the other removal and insertion. *See id.*

77. *See id.* at 1016, 46 U.S.P.Q.2d at 1114.

78. *See id.*

79. *See id.* at 1015 n.2, 46 U.S.P.Q.2d at 1113 n.2.

80. *See id.*

81. *Id.* at 1018, 46 U.S.P.Q.2d at 1115. This was the case in *Dawn*. There, the jury found that despite identical functions, Kentucky Farms was not liable for literal infringement under the structural equivalence test but was liable for infringement under the DOE. *See id.* Yet it would seem impossible for the same product to somehow not be equivalent to the "means" of the means-plus-function claim (literal infringement) and at the same time equivalent to both the "means" and the "function" of the entire claim (infringement under the DOE). In returning inconsistent verdicts, the jury demonstrated the confusion associated with the two doctrines.

Plager attributed the source of this confusion to two previous Federal Circuit decisions attempting to distinguish between the tests for structural and DOE equivalence: *Valmont Industries, Inc. v. Reinke Manufacturing Co.*<sup>82</sup> and *Alpex Computer Corp. v. Nintendo Co.*<sup>83</sup> In *Valmont*, the court held that the function-way-result test applies only to the DOE and not to a structural equivalents analysis, because the latter requires identical functions between the claim and the accused device.<sup>84</sup> The court in *Alpex* agreed, holding that structural equivalence compares the accused product to the structure disclosed in the patent specification, whereas the DOE compares the accused product to the invention as a whole.<sup>85</sup>

Yet, Judge Plager argued that because the Patent Act demands means-plus-function elements be construed in light of the specified structure, there is no appreciable difference between a test comparing the structure and a test comparing the claim element.<sup>86</sup> Without a discernable difference, there is no reason to allow the function-way-result test in one instance and not the other.<sup>87</sup> Additionally, Judge Plager pointed out that the previous distinction between structural equivalents applying to only the specific element and DOE equivalents applying to the invention as a whole is invalid under the *Warner-Jenkinson* “element-by-element” rule.<sup>88</sup>

Given these overlaps and the inability to distinguish between the two tests, Judge Plager concluded that two different tests for equivalency are far too confusing for triers of fact, especially when each provides a test essentially similar to the other.<sup>89</sup> He advocated applying only the structural equivalency test to means-plus-function claims.<sup>90</sup>

82. 983 F.2d 1039, 25 U.S.P.Q.2d (BNA) 1451 (Fed. Cir. 1993).

83. 102 F.3d 1214, 40 U.S.P.Q.2d (BNA) 1667 (Fed. Cir. 1996).

84. See *Valmont*, 983 F.2d at 1043, 25 U.S.P.Q.2d at 1455.

85. See *Alpex*, 102 F.3d at 1222, 40 U.S.P.Q.2d at 1673.

86. See *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1019, 46 U.S.P.Q.2d (BNA) 1109, 1116 (Fed. Cir. 1998) (“[T]hese perceived distinctions appear to be either nonexistent or without significance, or are at least beyond what we can reasonably expect the triers of fact to sensibly discern.”).

87. See *id.* (“[While acknowledging that Section 112 requires identical function,] it is not readily apparent why use of the “way” and “result” parts of the tripartite test, to the extent that test is useful at all, would not also be helpful in the § 112 ¶ 6 context.”).

88. *Id.* at 1019 n.3, 46 U.S.P.Q.2d at 1116 n.3.

89. See *id.* at 1019, 46 U.S.P.Q.2d at 1117.

90. See *id.* at 1021-22, 46 U.S.P.Q.2d at 1118. Judge Plager does note, however, that *Dawn* does not present a case of an accused device having a function different from that specified in the claim that would call upon the court to determine whether a § 112 ¶ 6 claim element is limited to the “specified function,” or whether it can also encompass an equivalent function under the DOE. *Id.* at 1022 n.5, 46 U.S.P.Q.2d at 1118 n.5.

b) Judge Newman's view

Judge Newman disagreed with Judge Plager.<sup>91</sup> She stated that eliminating the application of the DOE to means-plus-function claims would move the Federal Circuit away from established *stare decisis* and add uncertainty to an already difficult area of law.<sup>92</sup> Judge Newman argued that the two rules have clear and distinct origins, purposes, and applications.<sup>93</sup> Any problem of jury confusion can be solved, she suggested, with more explicit special verdicts, not new, judge-made law.<sup>94</sup>

c) Judge Michel's view

Judge Michel took no position on the views of Judges Plager and Newman but instead posed a policy-based question: does applying the DOE analysis to means-plus-function language give greater protection to patent owners than Congress intended?<sup>95</sup> Fair patent protection, Judge Michel wrote, relies upon accurate notice to the public concerning what is protected.<sup>96</sup> Competing firms will often rely upon the patent file to ascertain the outer limits of a claim in order to avoid the risk of potential infringing activities.<sup>97</sup> Well-defined limits are particularly important for those patents incorporating means-plus-function language because the claim language alone does not define the scope of protection but instead relies on the description of the corresponding structure in the specification.<sup>98</sup> Allowing further broadening of the claim via the DOE would only continue to obfuscate the exact boundaries of infringement, potentially vitiating the essential role of the notice function.<sup>99</sup> Thus, according to Judge Michel, the unanswered question of whether courts should apply the DOE to § 112 ¶ 6 claims will continue to undermine the notice function

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91. *See id.* at 1022, 46 U.S.P.Q.2d at 1118.

92. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1022, 46 U.S.P.Q.2d (BNA) 1109, 1118 (Fed. Cir. 1998).

93. *See id.*

94. *See id.* at 1022, 46 U.S.P.Q.2d at 1119.

95. *See id.* at 1023, 46 U.S.P.Q.2d at 1119. For example, did Congress intend to include the protection against insubstantial differences in the "equivalents thereof" language of section 112 ¶ 6 and therefore not intend such claims to receive additional protection against equivalent functions under the DOE?

96. *See id.* ("Market participants as well as judges and jurors must be able to ascertain what subject matter is covered by the right to exclude.")

97. *See id.*

98. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1023, 46 U.S.P.Q.2d (BNA) 1109, 1119 (Fed. Cir. 1998).

99. *See id.*

until it is resolved either by the courts in a case directly on point or by Congress as part of the legislative process.<sup>100</sup>

### III. DISCUSSION

Both *Chiuminatta* and *Dawn* struggle to reconcile two competing policies that underlie U.S. patents—notice and equity.<sup>101</sup> As Judge Michel points out in his additional view from *Dawn*, means-plus-function claim language provides the patentee with the great benefit of protection from all equivalents of any structures which are disclosed in its specification.<sup>102</sup> The DOE provides still more protection, what some have called an expanding “penumbra” that stretches the boundaries of claim elements to produce equitable results.<sup>103</sup>

Yet, the more that fairness to the patentee dictates pushing patent protection beyond the literal language of the claim, the more uncertainty (and some would argue unfairness) its competitors have to bear. *Chiuminatta* and *Dawn* highlight this tension in two arenas—the extent to which DOE and structural equivalents are coextensive and the availability of contemporary technologies as equivalents.

#### A. Coextensive Equivalents

The *Chiuminatta* court stated that structural and DOE equivalents are, to some extent, coextensive.<sup>104</sup> Both allow for equivalent means to infringe a means-plus-function claim.<sup>105</sup> However, to literally infringe, structural equivalents must perform a function identical to the one described in the claim.<sup>106</sup> To infringe under the DOE, structural equivalents may perform either an identical or an equivalent function.<sup>107</sup>

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100. *See id.* Because the issue was not raised on appeal, Judge Michel did not advocate deciding it in *Dawn*. *See id.*

101. One commentator calls this the “Protection-Certainty Conundrum.” *See* Donald S. Chisum, *The Scope of Protection for Patents after the Supreme Court’s Warner-Jenkinson Decision: The Fair Protection-Certainty Conundrum*, 14 SANTA CLARA COMPUTER & HIGH TECH. L. J. 1, 5 (1998).

102. *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1023, 46 U.S.P.Q.2d (BNA) 1109, 1119 (Fed. Cir. 1998).

103. *See* MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGY AGE* 248 (Aspen Law and Business 1997).

104. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1310, 46 U.S.P.Q.2d (BNA) 1752, 1757 (Fed. Cir. 1998).

105. *See id.*

106. *See id.*

107. *See id.*

For example, the *Chiuminatta* court found that the function cited in the '499 claim and the function of the corresponding means in the accused device were identical (i.e., preventing the concrete adjacent to the blade from cracking).<sup>108</sup> Therefore, under either literal infringement or DOE infringement, the only question at issue was whether or not the means in the accused device (moveable wheels) was equivalent to the means described in the patent specification (the skid plate). The Federal Circuit found the accused structure to be substantially different and not literally infringing; therefore no infringement under the DOE was possible.<sup>109</sup>

A similar situation arose in *Dawn*. While the court did not directly cite the coextensive equivalents rule, its holding followed similar logic. The function identified in both the claim and the accused device was the same: locking and releasing the adjustment devices.<sup>110</sup> Therefore, the court limited its comparison to the accused structure (hole-and-pin system) and the claimed structure (rotating pin system) and concluded that the two were substantially dissimilar.<sup>111</sup> Having found the functions identical and the structures non-equivalent, the court held that a lack of literal infringement precluded a finding of DOE infringement.<sup>112</sup>

Thus, according to both *Dawn* and *Chiuminatta*, when function is identical and literal infringement is not found, courts should grant either summary judgment or JMOL on the DOE to prevent inconsistent verdicts.

## B. Contemporary Technologies

The *Chiuminatta* court drew a second distinction between the DOE and structural equivalents, that of technologies developed before and after the issuance of a means-plus-function patent claim. The court held that structural equivalents shall only include those equivalent technologies available at the time of issuance and disclosed in the patent specification.<sup>113</sup> The court then went on to hold that those technologies available at the time of issuance but *not* disclosed in the patent were neither available as structural or DOE equivalents, a rule this Note calls the "contemporary technology" rule. Specifically, Judge Lourie wrote:

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108. *See id.* at 1308, 46 U.S.P.Q.2d at 1756.

109. *See id.*

110. *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1015, 46 U.S.P.Q.2d (BNA) 1109, 1113 (Fed. Cir. 1998).

111. *See id.* at 1016, 46 U.S.P.Q.2d at 1113-14.

112. *See id.*

113. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1310, 46 U.S.P.Q.2d (BNA) 1752, 1758 (Fed. Cir. 1998).

[G]iven the prior knowledge of the technology asserted to be equivalent, it could readily have been disclosed in the patent. There is no policy-based reason why a patentee should get two bites at the apple. If he or she could have included in the patent what is now alleged to be an equivalent, and did not, leading to a conclusion that an accused device lacks an equivalent to the disclosed structure, why should the issue of equivalence have to be litigated a second time?<sup>114</sup>

Thus patentees who sue competitors for infringement involving equivalent structures available at the time of issuance but not disclosed in the specification as equivalents should be subject to summary judgment and JMOL on both literal infringement (for non-disclosure) and DOE infringement (for availability).

The contemporary technology rule draws a bright line between the DOE and structural equivalents, both as a practical matter and as a method for demonstrating the broader scope of the DOE. If the accused structure was available at the time of issuance, it cannot be a DOE equivalent. If it was available but not disclosed, it cannot be a structural equivalent. Such lines will help judges and juries practically differentiate between structural and DOE equivalents.<sup>115</sup>

The rule also provides an example of the conceptual difference between the two types of equivalents. For years, the Federal Circuit and several commentators have implied that the "literal" nature of structural equivalents should somehow be narrower than the DOE's broader and more equitable penumbra.<sup>116</sup> In *Chiuminata*, the court confirmed this by stating:

The doctrine of equivalents is necessary because one cannot predict the future. Due to technological advances, a variant of an invention may be developed after the patent is granted and that variant may constitute so insubstantial a change from what is claimed in the patent that it should be held to be an infringement. Such a variant, based on after-developed technology, could not have been disclosed in the patent. Even if such an element is found not to be a § 112, ¶ 6, equivalent because it is not equiva-

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114. *Id.* at 1311, 46 U.S.P.Q.2d at 1758.

115. For example, in *Dawn*, the fact that the multi-holed pin adjustment system was disclosed in the patent specification as inferior to the patented device would have provided clear evidence of non-equivalence under the contemporary technology rule.

116. See *Chiuminata*, 145 F.3d at 1311, 46 U.S.P.Q.2d at 1758; *Alpex Computer Corp. v. Nintendo*, 102 F.3d 1214, 40 U.S.P.Q.2d (BNA) 1667 (Fed. Cir. 1996); *MERGES*, *supra* note 103.

lent to the structure disclosed in the patent, this analysis should not foreclose it from being an equivalent under the doctrine of equivalents.<sup>117</sup>

The contemporary technology rule reinforces the notion that DOE equivalents give broader protection than structural equivalents.<sup>118</sup>

It is unclear, however, whether limiting structural equivalents to contemporary technologies follows *Warner-Jenkinson*, where the Supreme Court held that the evaluation of structural equivalents is “an application of the doctrine of equivalents in a restrictive role.”<sup>119</sup> Regarding the DOE, the Court also held that “the proper time for evaluating equivalency ... is at the time of infringement, not at the time the patent was issued.”<sup>120</sup> In issuing this holding, the Court expressly rejected the arguments that the scope of DOE equivalents was limited to those disclosed in the patent itself or those only available at the time of issuance.<sup>121</sup>

Thus, whether one can reconcile the contemporary technology rule with *Warner-Jenkinson* depends on what aspects of the DOE are narrowly applied to structural equivalents. If structural equivalents are more narrow based upon their definitional function in contrast to the DOE's equitable one, then such a rule would be consistent. Requiring disclosure of known equivalents certainly provides clearer definition. However, if structural equivalents are merely more narrow in that they only look at structure and not function and (as Judge Plager suggests) are otherwise “similar if not the same”<sup>122</sup> to the DOE, then the time of infringement holding in *Warner-Jenkinson* should apply to both DOE and structural equivalents, directly contradicting the contemporary technology rule. While the former conclu-

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117. *Chiuminata*, 145 F.3d at 1310, 46 U.S.P.Q.2d at 1758.

118. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 28 (1997) (structural equivalents limit the application of broad literal claim elements); *Graver Tank & Mfg. Co. v. Linde Air Products*, 339 U.S. 605, 609 (1950) (“[DOE] [e]quivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum.”). Professor Merges has argued that this, in fact, should be the economic basis of DOE analysis—the inherent value of the infringer's technological advances. Any “substantial” advance in technology (and thus valuable) contribution should not be held to infringe. See Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 909-911 (1990) (citing *Texas Instruments v. U.S. Trade Comm'n*, 805 F.2d 1558, 1558 (Fed. Cir. 1986) as an example of DOE analysis based on the merit of the accused device's contribution).

119. *Warner-Jenkinson*, 520 U.S. at 28.

120. *Id.* at 37.

121. See *id.*

122. *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1018, 46 U.S.P.Q.2d (BNA) 1109, 1115 (Fed. Cir. 1998) (Plager, J., additional view).

sion summarizes current Federal Circuit philosophy, future Supreme Court cases on the DOE may well take issue with such assumptions.

### C. Notice and Equity

The coextensive and contemporary technology restrictions provide greater clarity to competitors of potential infringement. Under the coextensive rule, a competitor can make a product functionally identical to a patented invention without fear of literal infringement as long as the product performs the function with a means available and undisclosed in the patent. The rule also protects accused products that perform equivalent functions with an undisclosed contemporary means. Thus, for competitors using such means, there is explicit notice that they are not infringing.

From an equity standpoint, however, the contemporary technology rule seems somewhat harsh toward plaintiffs who received their patents prior to *Chiuminata*. As Justice Ginsburg highlights in her *Warner-Jenkinson* concurrence regarding prosecution history estoppel, "The new [rule], if applied woodenly, might in some instances unfairly discount the expectations of a patentee who had no notice at the time of patent prosecution that such a [rule] would apply."<sup>123</sup> As a result, those patentees who prosecuted their applications before new bright line rules such as the contemporary technology rule might suffer consequences without having known the risks.

Also, unlike the extensive record and internal awareness available in prosecution history estoppel, a patentee may not always know every equivalent contemporary technology. Given that actual knowledge of current equivalents is required in order to disclose them, patent applicants will now have to do "equivalents" searches, much like prior art searches,<sup>124</sup> to make sure they are not surrendering potentially infringing products. Even if a patentee is extremely diligent in her equivalents search, she may not uncover all available equivalents. Some may be held as trade secrets by competitors. Others may be invented during patent prosecution.

While the contemporary technology rule helps promote logic and notice, it must not, as Justice Ginsburg warns, be applied woodenly if such an application would be unfair to the patentee. Flexibility should allow broad ranges of equivalents for patents issued before *Chiuminata* and perhaps even set the standard for disclosing contemporary equivalents to

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123. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 41 (1997) (Ginsburg, J. concurring).

124. See Douglas Y'Barbo, *The Heart of the Matter: The Property Right Conferred by Copyright*, 49 MERCER L. REV. 643, 670-71 (1998).

“reason to know” instead of “simple existence” in order to be more equitable.

#### IV. CONCLUSION

In affirming the DOE, the Supreme Court sent a clear message to patentees that U.S. law would protect their monopoly rights against minor changes made by competitors. However, in order to provide competitors with clearer notice of this protection, the Federal Circuit has begun to restrict the circumstances to which the DOE can apply. Coextensive equivalents and contemporary technologies provide two such restrictions. If the Federal Circuit continues to follow this trend, we may well see the entire scope of equivalents become a matter of law as well. While the DOE is not the prisoner of a formula, it must be fair to both patentee and competitor. Rules such as those discussed in this Note attempt to sustain the doctrine in this light.