

# ***BICON, INC. v. STRAUMANN CO.: THE FEDERAL CIRCUIT SPECIFICALLY EXCLUDED CLAIM VITIATION TO ILLUSTRATE A NEW LIMITING PRINCIPLE ON THE DOCTRINE OF EQUIVALENTS***

*By Blake B. Greene*

If the Federal Circuit had its way, the doctrine of equivalents would be no more. Over the past few years, the court has literally thrown everything but the kitchen sink at the doctrine through its adoption of a number of rules restricting the doctrine's scope. Because the Supreme Court only reprimanded the Federal Circuit for those principles intending to eliminate or drastically change the doctrine of equivalents,<sup>1</sup> the Federal Circuit was free to implement rules which slightly but unquestionably impaired the application of the doctrine.<sup>2</sup> Without further intervention by the Supreme Court, the Federal Circuit's gradual reduction of the doctrine's scope has the potential to effectively destroy the doctrine of equivalents over time.

In its recent holding in *Bicon, Inc. v. Straumann Co.*,<sup>3</sup> the Federal Circuit instituted another such principle limiting the application of the doctrine of equivalents. Because the court did not clearly define the rule, its scope and implications have yet to be determined. However, given the general contours of the new rule, it arguably fills a void left by other limiting principles. Accordingly, the new principle serves the Federal Circuit's goal of slowly but surely impairing the doctrine of equivalents.

This Note presents an overview of the recent efforts made by the Federal Circuit to limit the doctrine of equivalents and examines the new limiting principle adopted by the court in *Bicon*. Part I briefly recounts the evolution of the doctrine of equivalents and explores the major principles instituted by the Federal Circuit which limit the application of the doctrine. Part II summarizes the non-literal infringement holdings of both the district court and the Federal Circuit in *Bicon*. Finally, Part III discusses

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1. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo II)*, 535 U.S. 722, 739 (2002) (disagreeing with the Federal Circuit's holding that prosecution history estoppel is a complete bar, while noting that the responsibility for changing settled laws like the doctrine of equivalents and prosecution history estoppel rests with Congress and that "[f]undamental alterations in these rules risk destroying the legitimate expectations of inventors in their property").

2. For examples of some of these rules, see *infra* Section I.B.

3. *Bicon, Inc. v. Straumann Co. (Bicon II)*, 441 F.3d 945 (Fed. Cir. 2006).

the reasoning for the Federal Circuit's approach in its equivalence analysis in *Bicon* as well as the implications of its new limiting principle on the doctrine of equivalents.

## I. BACKGROUND

### A. The Doctrine of Equivalents

The doctrine of equivalents evolved in response to the concern that an "unscrupulous copyist" could avoid literal infringement of a patented invention by making insubstantial changes to that invention.<sup>4</sup> The Supreme Court created the doctrine over 150 years ago in *Winans v. Denmead*.<sup>5</sup> The Court was concerned that a patent right in a coal car having a circular form would be tenuous if the public could avoid infringement by freely varying the circular structure of the car.<sup>6</sup> Accordingly, the Court held that the accused octagonal coal car would infringe the patentee's invention if the device embodied the substance of the patented invention.<sup>7</sup> In such a case, the accused infringer could not avoid liability in asserting that her invention avoided the literal language of the patentee's claims by having a different form.<sup>8</sup> Ultimately, the Court deferred the question of infringement under the newly created doctrine of equivalents to the jury.<sup>9</sup>

The doctrine of equivalents therefore serves to expand the scope of a patent beyond what the patentee has literally claimed.<sup>10</sup> Requiring literal adherence to a claim for a finding of infringement significantly weakens the value of a patent.<sup>11</sup> Diminished patent rights, in turn, both weaken the incentive to innovate and reduce the disclosure of valuable inventions.<sup>12</sup> In contrast, enlarging the scope of a patent through the doctrine of equivalents enhances the patent's expected value,<sup>13</sup> which, in turn, increases the

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4. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607-08 (1950).

5. *Winans v. Denmead*, 56 U.S. 330 (1853).

6. *Id.* at 343-44.

7. *Id.*

8. *Id.* at 343.

9. *See id.* at 344.

10. Michael J. Meurer & Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L.J. 1947, 1961 (2005).

11. Donald S. Chisum, *The Scope of Protection for Patents after the Supreme Court's Warner-Jenkinson Decision: The Fair Protection—Certainty Conundrum*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 13, 19 (2003).

12. M. Scott Boone, *Defining and Redefining the Doctrine of Equivalents: Notice and Prior Art, Language and Fraud*, 43 IDEA 645, 662-63 (2003).

13. Meurer & Nard, *supra* note 10, at 1949 n.5.

incentive to innovate.<sup>14</sup> This benefit of added incentives comes at a cost, however. By adding an element of uncertainty in discerning the scope of the patent claims, the doctrine of equivalents conflicts with the public-notice function of patents and threatens to prevent noninfringing and inventive acts because competitors cannot distinguish a permissible substitute from an infringing equivalent.<sup>15</sup> Thus, failure to clearly define the scope of a patent right could hinder investment in innovation.<sup>16</sup> Effective patent policy should therefore achieve a proper balance between these competing interests.<sup>17</sup>

Nearly one hundred years after its decision in *Winans*, the Supreme Court in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.* again addressed the issue of non-literal infringement and established the modern contours of the doctrine of equivalents.<sup>18</sup> The Court emphasized that prohibiting only literal copying “would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions . . . .”<sup>19</sup> The essence of the doctrine of equivalents was therefore to prevent a person from “practic[ing] a fraud on a patent” by making minor variations to the claimed invention to avoid literal infringement.<sup>20</sup> The Court found that an accused device would infringe a patented invention under the doctrine of equivalents “if it performs substantially the same function in substantially the same way to ob-

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14. See Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. REV. 575, 628 (1999) (“Patent law may encourage innovation through either of conflicting means—a broad patent scope rewards innovators with the full economic value of an invention, while a narrow patent scope encourages innovation by making it easier for subsequent investors to improve on existing patented technology.”).

15. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed. Cir. 2005) (citing *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo II)*, 535 U.S. 722, 727 (2002)); see also David J.F. Gross & Shawn T. Gordon, *The Growing Importance of the Claim Vitiating Defense in Patent Cases* (pt. 2), THE COMPUTER & INTERNET LAWYER, May 2006, at 19.

16. See *Festo II*, 535 U.S. at 730-31 (“The monopoly is a property right; and like any property right, its boundaries should be clear. This clarity is essential to promote progress, because it enables efficient investment in innovation.”).

17. See *Meurer & Nard*, *supra* note 10, at 1978 (“Good patent policy should balance the benefits created by expanded patent scope against the costs of expanded scope and fuzzy property rights.”).

18. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997); *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950).

19. See *Graver Tank*, 339 U.S. at 607.

20. *Id.* at 607-08.

tain the same result.”<sup>21</sup> Regarding the application of the doctrine, the Court declared that equivalence “must be determined against the context of the patent, the prior art, and the particular circumstances of the case.”<sup>22</sup>

Approximately fifty years after deciding *Graver Tank*, the Supreme Court attempted to clarify the doctrine’s proper scope in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*<sup>23</sup> While the Court reaffirmed its adherence to the doctrine of equivalents, it expressed its concern with the broad application of the doctrine since *Graver Tank*: the doctrine of equivalents “has taken on a life of its own, unbounded by the patent claims. There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice function of the statutory claiming requirement.”<sup>24</sup>

To avoid this conflict, the Court adopted the rule that the doctrine of equivalents must be applied to individual claim elements rather than to the invention as a whole.<sup>25</sup> The Court believed that an equivalence analysis on an element-by-element basis avoided enlarging a patent beyond the scope of its claims.<sup>26</sup> Thus, while overall equivalence may exist between a ball-point pen and a fountain pen, analyzing the individual elements of the devices unquestionably reveals a lack of equivalency.<sup>27</sup> Regarding the issue of what is the proper test for determining equivalence, the Court held that examining each element in the context of the patent claim will guide “the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different<sup>28</sup> from the claimed element.”<sup>29</sup>

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21. *Id.* at 608 (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)). This test is known as the “function-way-result test” or the “tri-partite test.” Boone, *supra* note 12, at 651. Under the function-way-result test, a finding of equivalence requires that all three prongs be satisfied in the accused product. Cheri M. Taylor, *Claim Construction and Proving Infringement*, 875 PLI/PAT 9, 44 (2006).

22. *Graver Tank*, 339 U.S. at 609.

23. *Warner-Jenkinson*, 520 U.S. at 21.

24. *Id.* at 28-29, 40.

25. *Id.* at 29. This principle is known as the “all-elements rule.” Boone, *supra* note 12, at 650. For a detailed analysis of this rule, see *infra* Section I.B.3.

26. *Warner-Jenkinson*, 520 U.S. at 29 (quoting *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1573-74 (Fed. Cir. 1995) (Nies, J., dissenting)).

27. *Hilton Davis*, 62 F.3d at 1574 (Nies, J., dissenting).

28. This test for equivalence is known as the insubstantial differences test. Under this test, equivalence exists where the differences between the element in the accused product and the claim limitation are insubstantial. Kenneth D. Bassinger, *Unsettled Expectations in Patent Law: Festo and the Moving Target of Claim Equivalence*, 48 HOW. L.J. 685, 695 (2005).

29. *Warner-Jenkinson*, 520 U.S. at 40.

## B. Limiting Principles of the Doctrine of Equivalents

Finding the proper scope of the doctrine of equivalents requires the courts to balance the benefits against the costs of an expanded patent scope.<sup>30</sup> On the one hand, if literal infringement were the sole means of determining infringement, it would severely limit the value of a patent by allowing others to avoid liability by making trivial changes to the claimed elements.<sup>31</sup> On the other hand, depriving the public of clear notice of the scope of a patent hinders investment in technological products and services<sup>32</sup> and offends competitors' reliance interests.<sup>33</sup> Recently, the Federal Circuit has shifted the balance increasingly in favor of public notice.<sup>34</sup> The court has developed various principles of law that limit the expansion of the doctrine of equivalents and the uncertainty created by its application.<sup>35</sup> Significant among these limiting doctrines are prosecution history estoppel, the public dedication rule, the all-elements rule, claim vitiation, and specific exclusion.

### 1. Prosecution History Estoppel

Prosecution history estoppel precludes a patent holder from using the doctrine of equivalents to reclaim subject matter relinquished during the prosecution of her patent by either an amendment or an argument.<sup>36</sup> Because the amendments and arguments made during prosecution of the patent also notify the public of the scope of the patent, prosecution history estoppel ensures that a patent holder may not undermine this public-notice function through an assertion of equivalence.<sup>37</sup> The most common application of prosecution history estoppel occurs where a patent applicant amends or cancels a claim which the patent examiner rejects as unpatentable in light of prior art.<sup>38</sup> Whether prosecution history estoppel applies in a

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30. Meurer & Nard, *supra* note 10, at 1978.

31. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo II)*, 535 U.S. 722, 731 (2002).

32. Chisum, *supra* note 11, at 19.

33. John R. Thomas, *Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 781, 782 (2005).

34. Meurer & Nard, *supra* note 10, at 1978-79.

35. *Id.*

36. *See Eagle Comtronics, Inc. v. Arrow Commc'n Labs., Inc.*, 305 F.3d 1303, 1315 (Fed. Cir. 2002); Boone, *supra* note 12, at 655.

37. *See* Boone, *supra* note 12, at 655 ("Prosecution history estoppel is strongly linked to the public-notice function of the patent. The arguments and amendments made during prosecution of the patent serve as sources of notice as to what the patent covers in addition to the notice provided by the issued patent and its claims.")

38. 5A DONALD S. CHISUM, CHISUM ON PATENTS § 18.05 (2005).

particular case is a question of law.<sup>39</sup> A court may therefore deny an assertion of infringement under the doctrine of equivalents without analyzing equivalence under the function-way-result or the insubstantial differences tests, as these are factual inquiries.<sup>40</sup>

In *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*,<sup>41</sup> the Federal Circuit sought to enhance the power of prosecution history estoppel to limit the application of the doctrine of equivalents. The Federal Circuit held that when a patentee made an amendment that narrowed a claim limitation during prosecution for any reason related to the statutory patent requirements, no equivalents were available for the amended claim element.<sup>42</sup> The court concluded that this complete bar most effectively served the notice and definitional function of patent claims, noting that “[a]llowing some range of equivalents gives the patentee some benefit of the doubt as to what was disclaimed, a benefit that comes at the public’s expense.”<sup>43</sup> The court also emphasized that the complete bar provided certainty to the process of determining the scope of patent protection.<sup>44</sup>

While sympathetic to the Federal Circuit’s concern that the doctrine of equivalents weakened the public-notice function,<sup>45</sup> the Supreme Court overruled the Federal Circuit’s complete bar approach to prosecution history estoppel and adopted a rebuttable presumption approach instead.<sup>46</sup> Under the Court’s approach, a narrowing amendment made during prosecution gave rise to a rebuttable presumption that prosecution history estoppel barred the application of the doctrine of equivalents to the amended claim.<sup>47</sup> The patentee could overcome the presumption by showing that the equivalent was unforeseeable at the time of the application, the rationale for the amendment was no more than tangentially related to the

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39. *Panduit Corp. v. Hellermannntyton Corp.*, 451 F.3d 819, 826 (Fed. Cir. 2006).

40. The function-way-result test is a question of fact. *Anchor Wall Sys. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1313 (Fed. Cir. 2003). The insubstantial differences test is also a question of fact. *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1107 (Fed. Cir. 1996).

41. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo I)*, 234 F.3d 558 (Fed. Cir. 2000).

42. *Id.* at 566, 569.

43. *Id.* at 576.

44. *Id.* at 577 (“With a complete bar, both the public and the patentee know that once an element of a claim is narrowed by amendment for a reason related to patentability, that element’s scope of coverage will not extend beyond its literal terms. There is no speculation or uncertainty as to the exact range of equivalents that might be available.”).

45. *Meurer & Nard*, *supra* note 10, at 1982.

46. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo II)*, 535 U.S. 722, 737-38 (2002).

47. *Id.* at 741.

equivalent at issue, or another reason that suggested that he could not reasonably be expected to have described the equivalent in question.<sup>48</sup>

## 2. *The Public Dedication Rule*

In *Johnson & Johnston Associates Inc. v. R.E. Service Co.*,<sup>49</sup> the Federal Circuit held that by disclosing but not claiming subject matter in a patent, the patentee dedicated that unclaimed material to the public. Accordingly, the patent holder could not invoke the doctrine of equivalents to recapture the disclosed but unclaimed subject matter.<sup>50</sup> The Federal Circuit stated that to hold otherwise would “conflict with the primacy of the claims in defining the scope of the patentee’s exclusive right.”<sup>51</sup>

By precluding the patent holder from reclaiming subject matter disclosed but not claimed in the patent, the Federal Circuit once again favored the public-notice function over patentee protection.<sup>52</sup> The idea underlying the public dedication rule is that once the public has identified subject matter disclosed but not claimed in the patent, it can freely practice that material, knowing that the subject matter is in the public domain.<sup>53</sup> Like prosecution history estoppel, the public dedication rule is a question of law.<sup>54</sup> Therefore, a court may avoid performing an equivalence test while deciding whether the public dedication rule applies.<sup>55</sup>

## 3. *The All-Elements Rule*

The all-elements rule<sup>56</sup> provides that the test for equivalence under the doctrine of equivalents must be applied on an element-by-element basis.<sup>57</sup>

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48. *Id.* at 740-41.

49. *Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046 (Fed. Cir. 2002) (per curiam).

50. *Id.* at 1054. This principle is known as the public dedication rule. Boone, *supra* note 12, at 656. It is also known as the disclosure-dedication rule. *See Toro Co. v. White Consol. Indus.*, 383 F.3d 1326, 1330-31 (Fed. Cir. 2004).

51. *Johnson & Johnston*, 285 F.3d at 1054 (quoting *Sage Prods. Inc. v. Devon Indus.*, 126 F.3d 1420, 1424 (Fed. Cir. 1997)).

52. *See Boone, supra* note 12, at 656 (“Like prosecution history estoppel, the public dedication bar is strongly linked to the notice function of the patent.”).

53. *See id.* (“By reading the patent and the file history, a member of the public can identify subject matter that has been disclosed but not claimed, and can, therefore, practice that subject matter with the knowledge that it is outside the scope of the patent.”).

54. *Toro*, 383 F.3d at 1331.

55. *See supra* Section I.B.1 (noting that the function-way-result and insubstantial differences tests are factual inquiries).

56. The Federal Circuit stated that it is preferable to use “limitation” when referring to claim language and “element” when referring to the accused product. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo I)*, 234 F.3d 558, 563 n.1 (Fed. Cir. 2000). Along those lines, the “all-elements rule” is also known as the “all-limitations

A finding of infringement therefore requires that the accused product contain each claim limitation or its equivalent.<sup>58</sup> The motivation behind the all-elements rule, as with the other limiting doctrines, is to serve the public-notice function more effectively.<sup>59</sup> By requiring equivalence with regard to each claim limitation as opposed to the patented invention as a whole, the all-elements rule allows the public to more readily identify what constitutes infringement under the doctrine of equivalents.<sup>60</sup>

The following example demonstrates the application of the all-elements rule.<sup>61</sup> If a patent claims a desk comprising four legs, a flat surface, and a built-in pencil holder and an accused product contains four legs and a flat surface, the all-elements rule precludes a finding of infringement under the doctrine of equivalents because neither a built-in pencil holder nor its equivalent is present in the accused device. Normally, under the all-elements rule, the jury performs an equivalence analysis to determine whether each claim limitation exists in the accused product either literally or as an equivalent.<sup>62</sup> However, because no reasonable jury could find an equivalent element to the built-in pencil holder limitation, the court can accordingly grant summary judgment of noninfringement.<sup>63</sup> In contrast, under the old equivalence rule, a comparison of the accused product with the patented invention as a whole may result in a finding of infringement

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rule.” *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1317 n.1 (Fed. Cir. 1998).

We have said that “[i]n the All Elements rule, ‘element’ is used in the sense of a *limitation* of a claim,” and “[i]t is the *limitation* of a claim that counts in determining both validity and infringement, and a limitation may include descriptive terms.” . . . Thus, the All Elements rule might better be called the All Limitations rule.

*Id.* (citations omitted).

57. Boone, *supra* note 12, at 650.

58. *Id.* at 650-51.

59. See Meurer & Nard, *supra* note 10, at 1980.

60. Boone, *supra* note 12, at 651.

61. See Meurer & Nard, *supra* note 10, at 1979 n.161 (providing another hypothetical example of the all-elements rule).

62. See *Cook Biotech Inc. v. ACell, Inc.*, 460 F.3d 1365, 1373 (Fed. Cir. 2006) (“Infringement, whether literal or under the doctrine of equivalents, is a question of fact.”); *Anchor Wall Sys. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1313 (Fed. Cir. 2003) (noting that the function-way-result test is a question of fact); *Insituform Techs., Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1107 (Fed. Cir. 1996) (noting that the insubstantial differences test is a question of fact).

63. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997) (“Where the evidence is such that no reasonable jury could determine two elements to be equivalent, district courts are obliged to grant partial or complete summary judgment.”).

under the doctrine of equivalents.<sup>64</sup> The example illustrates not only how the all-elements rule operates but also that the all-elements rule will likely result in fewer findings of infringement under the doctrine of equivalents than the old rule.

The Federal Circuit adopted the all-elements rule in *Pennwalt Corp. v. Durand-Wayland, Inc.*<sup>65</sup> Noting that each claim element was “material and essential,”<sup>66</sup> the Federal Circuit expressed its concern with ignoring claim limitations in determining infringement under the doctrine of equivalents.<sup>67</sup> Judge Nies emphasized in her concurring opinion that “[i]nfringement on the basis of judicial fiat or jury sympathies resolving the vague question of whether a ‘fraud’ has been committed on the ‘invention as a whole’ cannot be the law.”<sup>68</sup> She reasoned that supporting application of the all-elements rule ensured proper notice demanded by due process under the Fifth Amendment and satisfied the requirement of “particularly pointing out and distinctly claiming subject matter” under 35 U.S.C. § 112(2).<sup>69</sup> The Supreme Court later validated the Federal Circuit’s limitation on the doctrine of equivalents when it adopted the all-elements rule in *Warner-Jenkinson*.<sup>70</sup>

#### 4. Claim Vitiating

##### a) Background

The claim vitiating rule provides that a patent holder cannot invoke the doctrine of equivalents if its application vitiates (i.e., effectively eliminates) a claim limitation.<sup>71</sup> The Federal Circuit created this limiting principle based on a guidance footnote in the Supreme Court’s *Warner-Jenkinson* opinion.<sup>72</sup> Regarding the role of the judge and jury in applying the doctrine of equivalents, the Court stated: “if a theory of equivalence would entirely vitiate a particular claim element, partial or complete

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64. Cf. *Meurer & Nard*, *supra* note 10, at 1979 n.161 (“Under the old rule, a finding of infringement under the DOE was possible when courts looked at the invention as a whole.”).

65. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987) (en banc).

66. *Id.* at 935 (quoting *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985)).

67. *Id.* at 935.

68. *Id.* at 954 (Nies, J., concurring) (emphasis in original).

69. *Id.*

70. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997).

71. *Gross & Gordon*, *supra* note 15, at 21.

72. Daniel H. Shulman & Donald W. Rupert, “Vitiating” the Doctrine of Equivalents: A New Patent Law Doctrine, 12 FED. CIR. B.J. 457, 462-64 (2003).

judgment should be rendered by the court, as there would be no further *material* issue for the jury to resolve.”<sup>73</sup> The Federal Circuit has also cited the Supreme Court’s earlier statement in *Warner-Jenkinson* that “[i]t is important to ensure that the application of the [all-elements] doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety”<sup>74</sup> as support for the claim vitiation rule.<sup>75</sup>

Since claim vitiation finds its origins in the Supreme Court’s discussion of the all-elements rule,<sup>76</sup> it is important to understand the relationship between the two doctrines.<sup>77</sup> As a matter of law, an element of an accused product is not an equivalent of a claim limitation if a finding of equivalence would vitiate that limitation.<sup>78</sup> Accordingly, without the embodiment of a literal claim limitation or its equivalent, the accused device violates the all-elements rule.<sup>79</sup> A finding of claim vitiation by the court therefore demands a ruling of noninfringement.<sup>80</sup> Consequently, because the judge alone decides whether claim vitiation applies as a matter of law, the claim vitiation rule removes the jury and effectively an equivalence test from the doctrine of equivalents inquiry.<sup>81</sup>

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

74. *Id.* at 29.

75. *See, e.g.*, *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed. Cir. 2005); *Searfoss v. Pioneer Consol. Corp.*, 374 F.3d 1142, 1151 (Fed. Cir. 2004); *Sage Prods. v. Devon Indus.*, 126 F.3d 1420, 1429 (Fed. Cir. 1997).

76. *See* Shulman & Rupert, *supra* note 72, at 462-64 (arguing that the claim vitiation doctrine originated from a misapplication of the all-elements rule).

77. The fact that the Federal Circuit has used claim vitiation to define the all-elements rule illustrates the difficulty in distinguishing these doctrines. *See* *Panduit Corp. v. Hellermanntyton Corp.*, 451 F.3d 819, 830 (Fed. Cir. 2006) (“Application of the doctrine of equivalents is limited by the ‘all elements rule,’ which provides that ‘the doctrine of equivalents does not apply if applying the doctrine would vitiate an entire claim limitation.” (quoting *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005))).

78. *Freedman*, 420 F.3d at 1358.

79. *See supra* Section I.B.3; *cf. Freedman*, 420 F.3d at 1359 (“There is no set formula for determining whether a finding of equivalence would vitiate a claim limitation, and thereby violate the all limitations rule.”).

80. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997) (“Where the evidence is such that no reasonable jury could determine two elements to be equivalent, district courts are obliged to grant partial or complete summary judgment.”).

81. *See* Gross & Gordon, *supra* note 15, at 22 (“Without an equivalents analysis, the jury is removed from the decision regarding infringement under the doctrine of equivalents.”); *see also* Shulman & Rupert, *supra* note 72, at 483 (“[A]pplication of claim vitia-

The following example illustrates the application of the claim vitiation doctrine. Suppose that in the patented desk example above,<sup>82</sup> the accused product contains four legs, a flat surface, and a built-in stapler holder. As a matter of law, the judge may decide that finding the built-in stapler holder equivalent to the built-in pencil holder would vitiate the pencil holder limitation. The judge does not perform either the function-way-result test or the insubstantial differences test to determine equivalency. The absence of an equivalent to the pencil-holder limitation in the accused product therefore violates the all-elements rule. Accordingly, the judge will rule that the accused product does not infringe the patented desk under the doctrine of equivalents.

Because every application of the doctrine of equivalents arguably reads a limitation out of the claim, an accused infringer may assert claim vitiation whenever the patent holder invokes the doctrine of equivalents.<sup>83</sup> Claim vitiation is therefore an incredibly significant defense to an assertion of non-literal infringement<sup>84</sup> and has the potential to severely threaten the application of the doctrine of equivalents.<sup>85</sup> Daniel Shulman and Donald Rupert recently illustrated the power of the claim vitiation rule in their survey of eighteen cases decided between 1994 and 2003 in which the Federal Circuit considered whether to apply the doctrine.<sup>86</sup> Their research showed that the court applied claim vitiation in fourteen of the cases.<sup>87</sup> The fact that the Federal Circuit found claim vitiation over seventy-five percent of the time in which it considered the doctrine's application attests to not only the court's continued resistance to a finding of infringement under the doctrine of equivalents but also the strength of the claim vitiation doctrine to preclude any such finding.

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tion, as a matter of law, is geared to ignore all evidence of function/way/result and the insubstantiality of the differences.”).

82. *See supra* Section I.B.3.

83. Calvin P. Griffith, *The Law, Technology & the Arts Symposium: The Past, Present and Future of the Federal Circuit*, 54 CASE W. RES. L. REV. 851, 854 (2004).

84. *See id.* at 853-54 (arguing that the most significant limitations on the doctrine of equivalents since 1999 involved the all-elements rule and the claim vitiation doctrine).

85. *See* Gross & Gordon, *supra* note 15, at 21 (“Infringement under the doctrine of equivalents is relevant only when the accused device is not within the literal scope of the claims, so it would follow that any finding of equivalents would vitiate the limitation to some degree, and so claim vitiation could swallow the doctrine of equivalents.”).

86. *See* Shulman & Rupert, *supra* note 72, at 484-86.

87. *Id.*

b) The Federal Circuit's Inconsistent Application of Claim Vitiating

Given the significance of claim vitiating in a doctrine of equivalents inquiry, it is highly desirable for the Federal Circuit to clearly and consistently delineate what constitutes claim vitiating.<sup>88</sup> Nevertheless, while there is considerable support in the Federal Circuit's case law for finding claim vitiating,<sup>89</sup> the court has applied the claim vitiating rule in varying ways, leading to unpredictable results.<sup>90</sup> Shulman and Rupert have attempted to categorize the various applications of the claim vitiating doctrine into four rules: the Lourie Rule, the Michel Rule, the No Limitation Rule, and the Significant Limitation Rule.<sup>91</sup> The authors suggest that while Judge Lourie and Judge Michel each have adopted a relatively predictable rule for applying the claim vitiating doctrine, other Federal Circuit judges have failed to apply claim vitiating in a consistent manner.<sup>92</sup>

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88. *Cf. id.* at 484 (suggesting that the Federal Circuit issue an en banc ruling regarding a rule of claim vitiating for the consistent application of the doctrine by the court and for the benefit of those who rely on the predictability of the patent law for their business decisions, advice, and cases).

89. *See, e.g.,* Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1362 (Fed. Cir. 2005) ("The problem, however, is that taken to its logical conclusion, Freedman's argument would mean that any support member capable of allowing translational and rotational motion would be equivalent to a support member 'slidably mounted to said seatbase,' which reads 'slidably mounted' completely out of the claims."); *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) ("To hold that 'unmounted' is equivalent to 'mounted' would effectively read the 'mounted on' limitation out of the patent. As the district court noted, the 'all elements rule' provides that the doctrine of equivalents does not apply if applying the doctrine would vitiate an entire claim limitation."); *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) ("[T]o allow what is undoubtedly a minority (i.e., 47.8%) to be equivalent to a majority would vitiate the requirement that the 'first and second longitudinal strips of adhesive . . . extend [sic] the majority of the lengths of said longitudinal marginal portions.' . . . If a minority could be equivalent to a majority, this limitation would hardly be necessary . . ."); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1160 (Fed. Cir. 1998) ("According to the expert testimony, any shape would be equivalent to the conical limitation of claims 2 and 10. Such a result is impermissible under the all-elements rule of *Warner-Jenkinson* because it would write the 'generally conical outer surface' limitation out of the claims."). *But see* *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1445-46 (Fed. Cir. 1997) (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997)) ("Both the claimed invention and the STAT-IM device employ an intramedullary rod element, and Wright's argument is that the STAT-IM rods are equivalent to the claimed rod. Thus, summary judgment was not appropriate because Wright's theory of equivalence would not 'entirely vitiate a particular claim element.'").

90. Shulman & Rupert, *supra* note 72, at 464, 488.

91. *Id.* at 464-65, 479.

92. *Id.* at 464 n.48.

The Lourie Rule practically eliminates any application of the doctrine of equivalents by requiring that “every word in a claim is a limitation that must be met in an identical way” to find infringement.<sup>93</sup> The Lourie Rule has consistently precluded application of the doctrine of equivalents where the accused product rearranged structural or spatial claim elements because any other arrangement would vitiate the specific arrangement described in the claims.<sup>94</sup> Judge Linn has applied the Lourie Rule.<sup>95</sup> Under the Michel Rule, claim vitiation exists where the literal scope of the claim language excludes the equivalent.<sup>96</sup> The Michel Rule has resulted in a finding of no infringement under the doctrine of equivalents in situations both where the equivalent range or number is outside the literal scope of the claimed range or number and where a claimed material is substituted (e.g., wood for metal).<sup>97</sup> Because Judge Michel would find the doctrine of equivalents inapplicable as a matter of law if there is no literal infringement, his application of the claim vitiation doctrine seemingly eliminates the doctrine of equivalents.<sup>98</sup> Judges Rader and Bryson have applied the Michel Rule.<sup>99</sup> The No Limitation Rule finds claim vitiation to exist where an equivalent requires such a broad reading of a claim limitation that the limitation is meaningless.<sup>100</sup> Judges Archer, Gajarsa, and Prost have applied the No Limitation Rule.<sup>101</sup> Finally, under the Significant Limitation Rule, claim vitiation occurs where an accused product contains changes from the literal scope of a significant claim limitation.<sup>102</sup> Judge Plager has applied the Significant Limitation Rule.<sup>103</sup>

In the recent case of *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*,<sup>104</sup> Judge Linn attempted to reconcile the differences in the application

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93. *Id.* at 465 (emphasis omitted).

94. *Id.* at 464-65.

95. *Id.* at 465.

96. *Id.* at 473. The Michel Rule appears to combine the doctrines of claim vitiation and specific exclusion. However, case law and academic literature seem to indicate that specific exclusion is a distinct principle from claim vitiation. *See infra* Section I.B.5.a.

97. Shulman & Rupert, *supra* note 72, at 465.

98. *Id.* at 477.

99. *Id.* at 465.

100. *Id.* at 479.

101. *Id.*

102. *Id.*

103. *Id.*

104. *Depuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, Nos. 05-1311, 05-1335, 2006 WL 3346155 (Fed. Cir. Nov. 20, 2006).

of the claim vitiation rule by clearly defining when the doctrine should apply.<sup>105</sup> Judge Linn stated that:

It is important to note that when we have held that the doctrine of equivalents cannot be applied to an accused device because it “vitiates” a claim limitation, it was not to hold that the doctrine is always foreclosed whenever a claim limitation does not literally read on an element of an accused device; such an interpretation of the ‘all elements’ rule would swallow the doctrine of equivalents entirely. . . . A holding that the doctrine of equivalents cannot be applied to an accused device because it “vitiates” a claim limitation is nothing more than a conclusion that the evidence is such that no reasonable jury could conclude that an element of an accused device is equivalent to an element called for in the claim, or that the theory of equivalence to support the conclusion of infringement otherwise lacks legal sufficiency.<sup>106</sup>

Because application of the claim vitiation rule not only is practically unpredictable but also appears to be judge-dependent to some extent,<sup>107</sup> it is debatable whether Judge Linn’s statement on the proper use of claim vitiation will influence other judges on the Federal Circuit.

### 5. *Specific Exclusion*

#### a) Background

The specific exclusion principle provides that a patent holder cannot assert an equivalent specifically excluded from the scope of the claims.<sup>108</sup> A patent may specifically exclude a proposed equivalent from the scope of the claimed invention either implicitly or explicitly.<sup>109</sup> Specific exclusion focuses on upholding the public-notice function by precluding a patent holder from using the doctrine of equivalents to reclaim subject matter

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105. *Id.* at \*8. Judge Linn does not appear to distinguish the claim vitiation rule from the all-elements rule. Instead, he notes that a requirement of the all-elements rule is that no limitation be vitiated. *See id.* at \*7 (“[A]s a practical matter, the ‘all-elements’ rule informs a doctrine of equivalents analysis by requiring that equivalence be assessed on a limitation-by-limitation basis, rather than from the perspective of the invention as a whole, and that no limitation be read completely out of the claim.”).

106. *Id.* at \*8 (citations omitted).

107. Shulman & Rupert, *supra* note 72, at 464 n.48.

108. *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994).

109. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1347 (Fed. Cir. 2001) (“[T]he foreclosure of reliance on the doctrine of equivalents in such a case depends on whether the patent clearly excludes the asserted equivalent structure, either implicitly or explicitly.”).

which the patentee clearly excluded.<sup>110</sup> Accordingly, the rule ensures that the public may rely on clear disclaimers in the patent to conclude that the patentee did not seek patent rights for this excluded subject matter.<sup>111</sup> The following example illustrates the application of the specific exclusion principle.<sup>112</sup> Suppose that in the patented desk example above,<sup>113</sup> the claim also requires that the desk be “non-metallic.” If the accused device is metallic but otherwise contains a literal embodiment for each claim limitation, specific exclusion will prevent the patent holder from asserting that a metallic desk is equivalent to a non-metallic desk. The rationale behind the application of the principle is that the patent makes “a clear and binding statement to the public that metallic structures are excluded from the protection of the patent.”<sup>114</sup>

Because the Federal Circuit has labeled specific exclusion as a “corollary” to the all-elements rule,<sup>115</sup> it is important to understand the relationship between the two doctrines. A finding of specific exclusion by the court as a matter of law<sup>116</sup> has the effect of precluding the accused element from being an equivalent to the claimed limitation.<sup>117</sup> The absence of a literal claim limitation or its equivalent in the accused device therefore violates the all-elements rule.<sup>118</sup> Consequently, the court in such cases

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110. *Id.* (“[T]he patentee cannot be allowed to recapture the excluded subject matter under the doctrine of equivalents without undermining the public-notice function of the patent.”).

111. *See id.* (noting that by drafting the patent to clearly exclude the proposed equivalent [catheters that used a dual lumen configuration], the patent holder allowed “competitors and the public to draw the reasonable conclusion that the patentee was not seeking patent protection for” the dual lumen configuration).

112. This example is guided by the one Judge Bryson provides in *SciMed*. *See id.*

113. *See supra* Section I.B.3.

114. *SciMed*, 242 F.3d at 1347.

115. *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005).

116. *See Novartis Pharms. Corp. v. Abbott Labs.*, 375 F.3d 1328, 1337 (Fed. Cir. 2004) (“[T]he district court found that the specific exclusion principle precluded it, as a matter of law, from treating the surfactant [accused element] as an element forming the lipophilic component [claim limitation.]”); *Affymetrix, Inc. v. Multilyte Ltd.*, No. C 03-03779 WHA, 2005 WL 1513147, at \*4 (N.D. Cal. June 23, 2005) (“Affymetrix correctly argues that the specific exclusion principle would preclude a jury’s finding of infringement under the doctrine of equivalents as a matter of law.”).

117. *See Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994) (“[T]he concept of equivalency cannot embrace a structure that is specifically excluded from the scope of the claims.”); *see also Wiener v. NEC Elecs., Inc.*, 102 F.3d 534, 541 (Fed. Cir. 1996) (holding that the accused device does not contain an equivalent for each claim limitation because specific exclusion applied).

118. *Boone, supra* note 12, at 651; *cf. Cook Biotech Inc. v. ACell, Inc.*, 460 F.3d 1365, 1379 (Fed. Cir. 2006) (“A claim that specifically excludes an element cannot

must grant summary judgment of noninfringement under the doctrine of equivalents.<sup>119</sup> Accordingly, an equivalence analysis under the function-way-result or the insubstantial differences tests may be entirely absent from this inquiry.<sup>120</sup>

Similarly, there is a kinship between the specific exclusion principle and the claim vitiation rule.<sup>121</sup> In instances where the court finds specific exclusion, claim vitiation applies with equal strength. Thus, in the hypothetical example involving the non-metallic desk and the accused metallic desk, the court may additionally or alternatively hold that a finding of equivalence would vitiate the “non-metallic” claim limitation.<sup>122</sup>

Nevertheless, there exist subtle distinctions between the doctrines. Specific exclusion and claim vitiation differ with respect to the source of preclusion of the doctrine of equivalents. Specific exclusion bars the use of an equivalent specifically excluded from the scope of the claims.<sup>123</sup> Accordingly, the patentee eliminated the equivalent once she drafted the patent because she (purposefully or unintentionally) excluded the equivalent from the scope of the claims. Because of her specific drafting, the patentee likely knew or reasonably could have known that a court would preclude an assertion of equivalence.

In contrast, claim vitiation provides that it is the alleged equivalent which prevents a finding of infringement under the doctrine of equivalents because that alternative element effectively eliminates the claim limitation in question.<sup>124</sup> Accordingly, a patentee’s affirmative disclaimer of an alleged equivalent is not the source of preclusion of the doctrine of equivalents as is the case in prosecution history estoppel, the public dedication rule, and specific exclusion. In fact, claim vitiation bars application of the

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through a theory of equivalence be used to capture a composition that contains that expressly excluded element without violating the ‘all limitations rule.’”).

119. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997) (“Where the evidence is such that no reasonable jury could determine two elements to be equivalent, district courts are obliged to grant partial or complete summary judgment.”).

120. *See supra* Section I.B.1 (noting that the function-way-result and insubstantial differences tests are factual inquiries).

121. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1347 (Fed. Cir. 2001) (“The [specific exclusion] principle articulated in these cases is akin to the familiar rule that the doctrine of equivalents cannot be employed in a manner that wholly vitiates a claim limitation.”).

122. *Id.* at 1347; *see also Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) (holding that both specific exclusion and claim vitiation rationalize a finding of no infringement under the doctrine of equivalents).

123. *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994).

124. *See Gross & Gordon, supra* note 15, at 21.

doctrine of equivalents “without any evidence that the patentee intended, knew, or could have known that [doctrine of equivalents] infringement opportunities would be lost.”<sup>125</sup> Consequently, while there must be instances in which the patentee anticipates that certain alternative elements will vitiate his claim limitations, there also must exist situations in which the patentee cannot reasonably foresee that specific substitute elements will vitiate her claim limitations.

The effect of this discrepancy between the two doctrines is that the court performs its analysis retrospectively (by looking at the language the patentee chose to write) in specific exclusion cases and prospectively (by looking at the alleged equivalent) in claim vitiation cases. Accordingly, specific exclusion focuses more on the public-notice function<sup>126</sup> by ensuring that the public can rely on specific disclaimers of subject matter made in the patent.<sup>127</sup> In contrast, the public-notice function does not play as important of a role in claim vitiation because the public cannot confidently predict that a particular element will vitiate a claim limitation based on the claim language.<sup>128</sup>

#### b) The Federal Circuit’s Application of Specific Exclusion

A review of the case law reveals fourteen cases in which the Federal Circuit has considered application of the specific exclusion rule in its doctrine of equivalents inquiry.<sup>129</sup> The fact that the Federal Circuit has applied the principle to preclude infringement under the doctrine of equivalents in thirteen of these fourteen cases attests to the strength of specific exclusion to severely limit the application of the doctrine of equivalents.<sup>130</sup> These cases illustrate that specific exclusion is applicable in two situations: where the patentee clearly disclaimed subject matter from the scope of the claimed invention in (1) the specification or (2) the claims.<sup>131</sup>

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125. Shulman & Rupert, *supra* note 72, at 483.

126. Gross & Gordon, *supra* note 15, at 25.

127. *Cf. SciMed*, 242 F.3d at 1347 (“The unavailability of the doctrine of equivalents could be explained . . . as the product of a clear and binding statement to the public that metallic structures are excluded from the protection of the patent.”).

128. *Cf. supra* Section I.B.4.b (noting the Federal Circuit’s inconsistent application of the claim vitiation doctrine).

129. *See* Appendix A.1.

130. It should be noted that in the one case where the Federal Circuit found no specific exclusion, it still held that there was no infringement under the doctrine of equivalents because of a violation of the all-elements rule. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1319 (Fed. Cir. 1998).

131. *See* Appendix A.1.

Although the case law is deficient with regard to cases involving specific exclusion in the specification, application of the principle appears to focus on explicit disclaimers,<sup>132</sup> such as where the patent holder criticizes the equivalent<sup>133</sup> or requires that the invention contain the claimed element.<sup>134</sup> Accordingly, application of the specific exclusion principle in these cases seems quite foreseeable.

In contrast, because a patentee generally does not explicitly disclaim subject matter in the patent claims,<sup>135</sup> the application of specific exclusion to the claims depends on whether the patentee implicitly disclaimed the proposed equivalent.<sup>136</sup> Since this inquiry involves a certain degree of in-

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132. Even in the instance where there is an implicit exclusion in the specification, there is additionally some type of explicit disclaimer to justifiably preclude the application of the doctrine of equivalents. *See* *Novartis Pharms. Corp. v. Abbott Labs.*, 375 F.3d 1328, 1337 (Fed. Cir. 2004):

In light of the specification's implicit teaching that surfactants do not compose the entire portion of the lipophilic component, Novartis is foreclosed from arguing that Span 80, which the specification expressly acknowledges is a surfactant, is an equivalent to a pharmaceutically acceptable *non-surfactant* lipophilic excipient, as required by the lipophilic phase under our claim construction.

*Id.*

133. *See* *Gaus v. Conair Corp.*, 363 F.3d 1284, 1291 (Fed. Cir. 2004) (finding specific exclusion in the specification where "Dr. Gaus criticized prior art in which the protective device relied on the fluid coming in contact with the voltage-carrying portions of the system [which is one of the elements of the accused product], and indicated that his invention avoids the resulting problem . . ." (citations omitted)); *SciMed*, 242 F.3d at 1345 (applying specific exclusion based on disclaimer in the specification, one of its rationales being that "the common specification of SciMed's patents referred to prior art catheters, identified them as using the [proposed equivalent] dual lumen configuration, and criticized them . . .").

134. *See* *Gaus*, 363 F.3d at 1291 (finding specific exclusion in the specification of devices like the accused product in which the pair of probe networks were not separate from the voltage-carrying components because "Dr. Gaus thus made clear that it is essential to his invention that the pair of probe networks be separate from the voltage-carrying components of the appliance"); *SciMed*, 242 F.3d at 1345 (applying specific exclusion based on disclaimer in the specification, one of its rationales being that "[t]he disclaimer of [proposed equivalent] dual lumens was made even more explicit in the portion of the written description in which the patentee identified coaxial lumens as the configuration used in 'all embodiments of the present invention'").

135. *Cf.* Jay Dratler, Jr., *Alice in Wonderland Meets the U.S. Patent System*, 38 AKRON L. REV. 299, 320 (2005) ("[A] patentee has every incentive to draft claims as broadly as possible, since the claims determine the legal scope of the legal monopoly that the patent provides.").

136. *See* *SciMed*, 242 F.3d at 1346 ("[B]y defining the claim in a way that clearly excluded certain subject matter, the patent implicitly disclaimed the subject matter that

terpretation, there is inevitably less predictability in the application of specific exclusion in these cases than in instances involving specification disclaimers. Furthermore, if applied too broadly, specific exclusion has the potential to consume the doctrine of equivalents because each claim arguably can specifically exclude any alternative not literally claimed.<sup>137</sup> Recognizing this problem, the Federal Circuit in *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*<sup>138</sup> expressly limited the application of specific exclusion, holding that “subject matter is not necessarily ‘specifically excluded’ from coverage under the doctrine unless its inclusion is somehow inconsistent with the language of the claim. Literal failure to meet a claim limitation does not necessarily amount to ‘specific exclusion.’”<sup>139</sup>

An examination of the cases in which the Federal Circuit applied specific exclusion to the claims reveals that while there is some unpredictability in the application of the principle,<sup>140</sup> a general pattern seems to arise. Where the patentee claims one option in a binary choice setting, specific exclusion will preclude the patent holder’s assertion that the other option is equivalent.<sup>141</sup> This application of the specific exclusion principle is particularly applicable for structural limitations.<sup>142</sup> Note, however, that the

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was excluded and thereby barred the patentee from asserting infringement under the doctrine of equivalents.”).

137. See Gerald Sobel, *Patent Scope and Competition: Is the Federal Circuit’s Approach Correct?*, 7 VA. J.L. & TECH. 3, 26 (2002) (“If each claim were to ‘specifically exclude’ all alternatives not literally within it, the doctrine of equivalents would disappear.”); see also Gerald Sobel, *The Impact of Major Changes by the Federal Circuit in the Law Affecting Claim Scope*, 54 CASE W. RES. L. REV. 857, 860 (2004) [hereinafter Sobel, *Impact of Major Changes*] (“The [specific exclusion] doctrine was hard to distinguish from the exclusion of everything not literally claimed—which would bar *all* equivalents.”).

138. 149 F.3d 1309 (Fed. Cir. 1998).

139. *Id.* at 1317.

140. See, e.g., *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581-82 (Fed. Cir. 1996) (finding that the claim limitation that the splay-creating string end offset distance take on at least three values specifically excluded the two-distance splayed string system in the accused device); *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 399 (Fed. Cir. 1994) (holding that claimed stable rigid frame formed of components other than the seat and back panels specifically excluded alleged equivalent, stable rigid frame assembled from the seat and back panels).

141. See *Senior Techs., Inc. v. R.F. Techs., Inc.*, 76 Fed. Appx. 318, 321 (Fed. Cir. 2003) (“[I]n a binary choice situation where there are only two structural options, the patentee’s claiming of one structural option implicitly and necessarily precludes the capture of the other structural option through the doctrine of equivalents.”); see also Gross & Gordon, *supra* note 15, at 26 (“If a word in a claim suggests an either/or or binary concept, then the claim excludes the unclaimed counterpart.”).

142. See, e.g., *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) (holding that claim limitation “mounted” specifically excluded objects that are

binary choice setting does not simply involve the negation of a claim limitation (i.e., “suede” v. “not suede” or “blue” v. “not blue”), but requires that the claim limitation be one of *only* two options.<sup>143</sup> For example, a process claim limitation that requires an inert gas atmosphere specifically excludes a process using reactive gases such as alleged equivalent heated air.<sup>144</sup>

### 6. *Concluding Remarks*

Through its implementation of these limiting principles, the Federal Circuit has provided the accused infringer with an arsenal of defenses which, if utilized effectively, may practically render infringement under the doctrine of equivalents a Herculean task for the plaintiff to prove. Furthermore, because a court may apply many of these rules as matters of law, the jury is all but removed from the equivalence inquiry. Accordingly, the patent holder’s argument that the accused element performs substantially the same function-way-result as the claim limitation or that the differences between the two are insubstantial essentially becomes meaningless. In adopting these principles to limit the application of the doctrine of equivalents, the Federal Circuit has clearly demonstrated its interest in preserving the public-notice function at the expense of patentee protection.

Nevertheless, despite the potential for these limiting principles to effectively eliminate the doctrine of equivalents, the Supreme Court has as-

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“unmounted.”); *Senior*, 76 Fed. Appx. at 322 (finding no infringement under the doctrine of equivalents because “the patentee’s decision to claim a ‘receiving circuit’ located in the ‘same housing’ necessarily and implicitly excluded from the scope of equivalents an embodiment of the ‘receiving circuit’ which is *not* located in the ‘same housing.’”). *But see Ethicon*, 149 F.3d at 1319 (finding claim limitation requiring a lockout “in the staple cartridge” did not specifically exclude alleged equivalent lockout not “in the staple cartridge.”). The *Ethicon* opinion seemingly contradicts the application of specific exclusion in binary choice settings because there are only two structural options for the location of the lockout: in the staple cartridge and not in the staple cartridge. However, *Ethicon* appeared to be an attempt by Judge Lourie to abandon the specific exclusion rule. *See Sobel, Impact of Major Changes, supra* note 137, at 860 (“The court explained in *Ethicon Endo-Surgery* that, looking back, the holdings in the ‘specific exclusion’ cases should be understood as situations where, on the facts, no reasonable jury could have found equivalence. In other words, the ‘specific exclusion’ principle was abandoned.” (citation omitted)). Nevertheless, because the specific exclusion principle has survived post *Ethicon*, the Federal Circuit will arguably reject this portion of its holding as precedent. In fact, no specific exclusion cases listed in Appendix A.1 and decided after *Ethicon* cite to this portion of *Ethicon*’s holding.

143. *See Senior*, 76 Fed. Appx. at 321.

144. *See Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*, 114 F.3d 1547, 1551, 1561 (Fed. Cir. 1997).

sured patent holders that the doctrine will remain a protected patent right unless Congress decides otherwise.<sup>145</sup> Accordingly, the plaintiff in an infringement suit must continue to plead non-literal infringement and, in doing so, must frame its argument to account for the numerous defenses that the accused infringer will assuredly assert.

## II. CASE SUMMARY

In *Bicon*, the Federal Circuit found that the accused product did not infringe either literally or under the doctrine of equivalents.<sup>146</sup> In its equivalence inquiry, the court applied the specific exclusion principle and, in doing so, appeared to deliberately exclude the equally applicable and, to a certain extent, more fitting claim vitiation rule. The reasoning behind the Federal Circuit's omission was arguably to allow the court to illustrate a new rule limiting application of the doctrine of equivalents.

### A. Facts

U.S. Patent No. 5,749,731 ("the '731 patent") claims an emergence cuff apparatus designed to maintain a space around a dental implant prosthesis so that a dental crown can fit underneath a patient's gum line when positioned on the implant.<sup>147</sup> The dental implant described in the '731 patent is composed of two distinct parts: the root member (10),<sup>148</sup> which the surgeon inserts into the patient's jaw bone and which stabilizes the implant; and the abutment (14), which connects to the root member and protrudes above the patient's gum line to provide the means for fastening a dental crown.<sup>149</sup> The surgeon places the emergence cuff (30) claimed in the '731 patent on the abutment following surgical implantation of the root member and subsequent attachment of the abutment.<sup>150</sup> The cuff prevents the patient's gum tissue from closing around the abutment during the healing process.<sup>151</sup> Once the patient's jaw and mouth have fully healed, removal of the cuff yields a space which allows the permanent crown to rest beneath the patient's gum line, thus cosmetically maintaining the patient's

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145. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co. (Festo II)*, 535 U.S. 722, 733 (2002) (citing *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 28 (1997)).

146. *Bicon, Inc. v. Straumann Co. (Bicon II)*, 441 F.3d 945, 956 (Fed. Cir. 2006).

147. *Id.* at 946.

148. See Figure 1. All subsequent parentheticals listing a number will refer to Figure 1.

149. *Bicon II*, 441 F.3d at 946-47.

150. *Id.* at 947.

151. *Id.*

natural gum line.<sup>152</sup> The cuff also serves as a means for affixing a temporary crown while the permanent crown is made.<sup>153</sup>

Diro, Inc., owner of the '731 patent, and licensee Bicon, Inc. (collectively "Diro"), jointly brought a patent infringement suit in the United States District Court for the District of Massachusetts against The Straumann Company and Institut Straumann AG (collectively "Straumann") alleging that two of Straumann's crown preparation products infringed at least claim 5 of the '731 patent.<sup>154</sup> The relevant sections of claim 5 are as follows:<sup>155</sup>

An emergence cuff member for use in preserving the interdental papilla during the procedure of placing an abutment on a root member implanted in the alveolar bone of a patient in which

- [a] the abutment has a frusto-spherical basal surface portion and
- [b] a conical surface portion having a selected height extending therefrom comprising . . .
- [c] the bore having a taper generally matching that of the conical surface portion of the abutment, . . . .

Straumann's first alleged infringing device, called an "impression cap," is a plastic structure that fits over the abutment and the shoulder of the root member while the surgeon prepares the crown mold.<sup>156</sup> Straumann's second accused device, called a "burnout coping," is a cone-shaped plastic device that is used to construct the permanent crown.<sup>157</sup> The burnout coping fits over a structure that possesses the same shape as the abutment and shoulder portion of the root member.<sup>158</sup>

## B. The District Court's Ruling

Prior to analyzing Diro's infringement claims, the district court held that the preamble—all of the claim language preceding the word "comprising" in claim 5—limited the claim.<sup>159</sup> The court based its conclusion on the fact that the preamble was an integral part of claim 5 and that reference to the structure recited in the preamble was necessary to completely

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152. *Id.*

153. *Id.*

154. *Id.* at 946, 948.

155. The claim is reproduced in subdivided form as provided by the Federal Circuit. *See id.* at 948-49.

156. *Id.* at 948.

157. *Id.*

158. *Id.*

159. *Bicon, Inc. v. Straumann Co. (Bicon I)*, No. Civ.A. 01-10269-GAO, 2004 WL 2387277, at \*3 (D. Mass. Sept. 29, 2004) (mem.).

understand certain terms recited in the limitations.<sup>160</sup> The district court concluded that the abutment listed in the preamble was a specific structure defined by the characteristics described in the claim and specification.<sup>161</sup> Accordingly, the court found that the abutment was distinct from the root member and contained a frusto-spherical basal surface portion (28), meaning that the base of the abutment had a convex surface,<sup>162</sup> as well as a conical surface portion (24) that extended away from the frusto-spherical basal surface to a selected height.<sup>163</sup>

As a result of the court's construction of the preamble as a limitation of the claim, Diro conceded that the abutment in either accused Straumann device lacked a frusto-spherical basal surface.<sup>164</sup> Nevertheless, Diro asserted that the trumpet-shaped neck surface of the Straumann root member<sup>165</sup> contained the frusto-spherical basal surface or its equivalent.<sup>166</sup> Reiterating that the abutment described in claim 5 must contain a frusto-spherical basal surface, the court held that a device with a frusto-spherical basal surface on the root member rather than on the abutment was not equivalent to the structure recited in the claim.<sup>167</sup> The court concluded that to find otherwise would vitiate the claim limitation that the abutment had a frusto-spherical basal surface, noting that "[h]aving claimed within the scope of its patent a device having specific characteristics, including discrete implant and abutment structures and an abutment with a frusto-spherical basal surface, Diro cannot now rewrite the claim to eliminate these specific structural limitations."<sup>168</sup>

Furthermore, the district court rejected Diro's argument that the concave, trumpet-shaped surface of the root member neck was equivalent to the convex, frusto-spherical basal surface of the abutment because such a theory would vitiate the claim limitation.<sup>169</sup> The court found that the "pa-

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160. *Id.*

161. *Id.*

162. The district court construed "frusto-spherical" as follows:  
"Frusto-spherical" rather obviously refers to a solid having the shape of a frustum of a sphere—that is, a sphere the upper portion of which has been "cut off" by a plane. The remaining portion of the sphere would have, just as a full sphere would have, a convex surface.

*Bicon, Inc. v. Straumann Co.*, 271 F. Supp. 2d 368, 375 (D. Mass. 2003).

163. *Bicon I*, 2004 WL 2387277, at \*3.

164. *Id.* at \*4.

165. See Figure 2B.

166. *Bicon I*, 2004 WL 2387277, at \*4.

167. *Id.* at \*5.

168. *Id.*

169. *Id.* at \*5-6.

tentee used clear language to impose a narrowing structural limitation in claim 5, and that language necessarily limit[ed] the scope of possible equivalents.”<sup>170</sup> Without defining the scope of equivalents, the court held that the scope could not include the concave, trumpet-shaped neck of the root member because a concave surface was the opposite of a convex surface<sup>171</sup> and the trumpet-shaped neck did not satisfy the function-way-result test.<sup>172</sup> Accordingly, the district court ruled that Straumann’s accused devices did not infringe claim 5 of the ’731 patent under the doctrine of equivalents and granted Straumann’s motion for summary judgment of noninfringement.<sup>173</sup>

### C. The Federal Circuit’s Ruling

Regarding the issue of whether the abutment described in the preamble limited claim 5, the Federal Circuit, in an opinion by Judge Bryson,<sup>174</sup> affirmed the district court’s finding that the preamble contained limitations relating to the abutment.<sup>175</sup> Having construed the preamble as a matter of law, the Federal Circuit addressed the district court’s infringement analysis.

The Federal Circuit affirmed the district court’s finding of noninfringement under the doctrine of equivalents.<sup>176</sup> The Federal Circuit held that finding the concave structure of the root member equivalent to the convex structure of the abutment would contradict the frusto-spherical claim limitation.<sup>177</sup> Noting that the preamble of claim 5 possessed a detailed description of the shape of the abutment, the Federal Circuit then ruled that “[a] claim that contains a detailed recitation of structure is properly accorded correspondingly limited recourse to the doctrine of equivalents.”<sup>178</sup> The court found this principle particularly applicable to claim 5 because the claim specified a structure for the basal portion of the abut-

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170. *Id.* at \*6.

171. While not explicitly mentioned by the district court, this reasoning is based on the specific exclusion principle. *See supra* Section I.B.5.

172. *Bicon I*, 2004 WL 2387277, at \*6.

173. *Id.* The district court performed a complete infringement analysis both literally and under the doctrine of equivalents, which further supported a finding of noninfringement, and addressed Bicon’s lack of standing. The specifics of these findings are not relevant to the purposes of this Note.

174. *Bicon, Inc. v. Straumann Co. (Bicon II)*, 441 F.3d 945, 946 (Fed. Cir. 2006). The other judges on the panel were Judges Michel and Gajarsa. *Id.*

175. *Id.* at 953.

176. *Id.* at 955.

177. *Id.*

178. *Id.* (citing *Tanabe Seiyaku Co. v. Int’l Trade Comm’n*, 109 F.3d 726, 732 (Fed. Cir. 1997)).

ment that explicitly excluded distinctly different and opposite shapes.<sup>179</sup> The Federal Circuit further noted that in such cases “by defining the claim in a way that clearly excluded certain subject matter, the patent implicitly disclaimed the subject matter that was excluded and thereby barred the patentee from asserting infringement under the doctrine of equivalents.”<sup>180</sup> Because the shape of Straumann’s abutment was frusto-conical<sup>181</sup> (not frusto-spherical) and the neck of Straumann’s root member was concave (not convex), these structures were distinctly contrary to that of the claimed abutment and were therefore excluded.<sup>182</sup> Accordingly, the specific exclusion principle precluded a finding of equivalence of either the basal portion of the Straumann abutment or the neck of the Straumann root member to the convex, frusto-spherical basal surface portion of the abutment described in claim 5.<sup>183</sup>

### III. DISCUSSION

In applying specific exclusion in its equivalence inquiry, the Federal Circuit explicitly omitted claim vitiation despite its apparent relevance. Along with serving the court’s preference for the public-notice function, the omission arguably allowed the Federal Circuit to illustrate a new principle limiting application of the doctrine of equivalents. Section III.A discusses three parts of the court’s analysis where it failed to apply claim vitiation and examines the rationale behind the Federal Circuit’s equivalence analysis. Section III.B then explores the implications of the court’s new limiting principle.

#### A. Specifically Excluding Vitiating: Emphasis on Notice and a New Limiting Doctrine

##### 1. Where’s Claim Vitiating?

As its first rationale for precluding infringement under the doctrine of equivalents, the district court held that to find an equivalent in a frusto-spherical basal surface not on the abutment but instead on the root member itself would vitiate the claim limitation describing that the abutment has a

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179. *Bicon II*, 441 F.3d at 955.

180. *Id.* (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1346 (Fed. Cir. 2001)).

181. *See* Figure 2.A.

182. *Bicon II*, 441 F.3d at 955-56.

183. *Id.* The Federal Circuit further analyzed Diro’s claim of infringement both literally and under the doctrine of equivalents and addressed Bicon’s lack of standing. The specifics of these findings are not relevant to the purposes of this Note.

frusto-spherical basal surface.<sup>184</sup> Nevertheless, the Federal Circuit did not address this application of claim vitiation on appeal.<sup>185</sup> Such an omission is perplexing because claim vitiation appears particularly applicable in this situation using the principles of the Lourie Rule (because the frusto-spherical basal surface is structurally rearranged to be on the root member rather than on the abutment)<sup>186</sup> or the Significant Limitation Rule (because the frusto-spherical basal surface of the abutment is a significant limitation of the claim).<sup>187</sup> The fact the judges on the *Bicon* panel have not applied these particular claim vitiation principles<sup>188</sup> may explain the absence of claim vitiation from this part of the opinion. On the other hand, the Federal Circuit may have had a particular reason for this omission.

Similarly, while the district court applied both claim vitiation and specific exclusion to the concave/convex equivalence inquiry,<sup>189</sup> the Federal Circuit removed claim vitiation from the analysis and only applied specific exclusion.<sup>190</sup> The application of the specific exclusion principle was entirely proper in this instance because of the binary nature of the claim limitation: concave versus convex.<sup>191</sup> The principle precludes a finding of equivalence because the patentee drafted claim 5 of the '731 patent to require one of only two options (convex) and to clearly exclude the other (concave). Nevertheless, application of claim vitiation is also appropriate in situations where the court finds specific exclusion.<sup>192</sup> Judge Bryson was certainly aware of this fact because he held in *Asyst Technologies, Inc. v. Emtrak, Inc.*<sup>193</sup> that both claim vitiation and specific exclusion precluded an "unmounted" substitute from being equivalent to a "mounted" claim

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184. *Bicon, Inc. v. Straumann Co. (Bicon I)*, No. Civ.A. 01-10269-GAO, 2004 WL 2387277, at \*5 (D. Mass. Sept. 29, 2004) (mem.).

185. *See Bicon II*, 441 F.3d at 955-56.

186. The Lourie Rule has consistently precluded application of the doctrine of equivalents where the accused product has rearranged structural claim elements. *See supra* Section I.B.4.b.

187. The district court's emphasis that the abutment is a specific structure attests to the significance of the claim limitation. *See Bicon I*, 2004 WL 2387277, at \*3. Under the Significant Limitation Rule, claim vitiation occurs where an accused product contains changes from the literal scope of a significant claim limitation. *See supra* Section I.B.4.b.

188. While Judges Bryson and Michel have applied the Michel Rule, Judge Gajarsa has applied the No Limitation Rule. *See supra* Section I.B.4.b.

189. *See Bicon I*, 2004 WL 2387277, at \*6.

190. *See Bicon II*, 441 F.3d at 955-56.

191. *See supra* Section I.B.5.b (noting that specific exclusion applies where the patentee claims one option in a binary choice setting).

192. *See id.*

193. *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188 (Fed. Cir. 2005).

limitation.<sup>194</sup> In fact, there Judge Bryson principally based his finding of no non-literal infringement on claim vitiation; specific exclusion was merely a supplemental basis for his decision.<sup>195</sup> Accordingly, it would have been consistent and entirely appropriate for Judge Bryson to additionally or alternatively apply claim vitiation in the concave/convex equivalence inquiry, especially considering that the district court specifically alluded to claim vitiation in its analysis.<sup>196</sup> Again, the implication arises that the Federal Circuit had a specific purpose for its omission.

Finally, the Federal Circuit applied specific exclusion without mentioning claim vitiation in its determination of whether the frusto-conical basal portion of the accused Straumann abutment was equivalent to the frusto-spherical basal portion of the claimed abutment.<sup>197</sup> As a preliminary matter, this equivalence analysis is intriguing not only because the district court did not address this issue in its opinion,<sup>198</sup> but also because Diro did not appear to argue that the frusto-conical Straumann abutment was an equivalent.<sup>199</sup> Accordingly, this suggests that the Federal Circuit had specific intentions for including this equivalence inquiry.

On another note, the Federal Circuit's application of specific exclusion in this instance appears questionable because "frusto-spherical" is not a binary claim limitation. Specifically, the "frusto-spherical" limitation arguably does not require that the claim limitation be one of only two options. Accordingly, the recitation of this limitation does not clearly exclude a structure that is "frusto-conical." The specific exclusion principle therefore appears inapplicable in this situation. In contrast, one can appropriately argue that finding an abutment with a frusto-conical basal portion equivalent to an abutment having a frusto-spherical basal portion would vitiate that claim limitation. This assertion is particularly compelling using the principles of the Significant Limitation Rule because the frusto-spherical basal surface of the abutment is a significant limitation of the claim.<sup>200</sup> Claim vitiation therefore seems better suited to preclude a finding of equivalence in this case. While it is possible that the Federal Circuit misapplied the specific exclusion rule here, it is also plausible that the

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194. *See id.* at 1195.

195. *See id.*

196. *See Bicon, Inc. v. Straumann Co. (Bicon I)*, No. Civ.A. 01-10269-GAO, 2004 WL 2387277, at \*6 (D. Mass. Sept. 29, 2004) (mem.).

197. *See Bicon, Inc. v. Straumann Co. (Bicon II)*, 441 F.3d 945, 955-56 (Fed. Cir. 2006).

198. *See Bicon I*, 2004 WL 2387277, at \*5-7.

199. *See Brief of Petitioners-Appellants, Bicon, Inc. v. Straumann Co.*, No. 05-1168, 2005 WL 1308593 (Fed. Cir. Apr. 18, 2005).

200. *See supra* note 187.

Federal Circuit excluded claim vitiation from its equivalence analysis for a specific reason.

## 2. *The Federal Circuit's Purpose*

So, why did the Federal Circuit exclude the claim vitiation doctrine from its equivalence inquiry of the frusto-spherical claim limitation? While application of claim vitiation is highly unpredictable<sup>201</sup> and therefore demands reform, this omission was surely not an attempt by the Federal Circuit to vitiate the claim vitiation rule. In fact, Judge Bryson applied the doctrine later in his opinion while analyzing the equivalence of limitation [e] (the conical surface portion limitation).<sup>202</sup> Additionally, in at least one case following the *Bicon* opinion, the Federal Circuit applied claim vitiation.<sup>203</sup> The motivation behind the Federal Circuit's equivalence holding appears to be the result of its effort to focus on the public-notice function and to illustrate a new limiting principle on the doctrine of equivalents.

### a) Focusing on the Public-Notice Function

The public-notice function ensures that the public can readily discern the patent scope based on the language in the patent and, in doing so, rely on any of the patentee's disclaimers of subject matter.<sup>204</sup> The essence of the specific exclusion principle is that the patentee made a clear statement to the public in her patent that she is not seeking patent protection for the substitute at issue.<sup>205</sup> Accordingly, application of specific exclusion preserves the public-notice function by precluding the patent holder from reclaiming the clearly excluded subject matter to establish equivalence.

By only applying specific exclusion to preclude a finding of equivalence for the frusto-spherical limitation, the Federal Circuit emphasized its dedication to the public-notice function. Application of the specific exclusion principle allowed the Federal Circuit to effectively blame the patentee for the preclusion of the doctrine of equivalents. After all, the patentee drafted the patent in such a manner as to disclaim an abutment having a

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201. See *supra* Section I.B.4.b.

202. See *Bicon II*, 441 F.3d at 956.

203. See *Panduit Corp. v. Hellermannntyton Corp.*, 451 F.3d 819, 830 (Fed. Cir. 2006).

204. Cf. *PSC Computer Prods., Inc. v. Foxconn Int'l, Inc.*, 355 F.3d 1353, 1360 (Fed. Cir. 2004) ("The ability to discern both what has been disclosed and what has been claimed is the essence of public notice. It tells the public which products or processes would infringe the patent and which would not.").

205. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1347 (Fed. Cir. 2001).

concave or frusto-conical basal surface portion. Accordingly, the public is entitled to rely on this specific disclaimer in determining the patent scope. Because the patentee had the opportunity to draft the claim to include these structural features,<sup>206</sup> he, and not the relying public, should bear any loss of equivalence as a result of his specific drafting.<sup>207</sup>

In contrast, claim vitiation effectively weakens the emphasis on the public-notice function by looking prospectively at the source of invalidation of the doctrine of equivalents. This principle focuses on the accused substitute rather than on the actual language in the patent. Consequently, the claim vitiation rule shifts the reason for rendering the doctrine of equivalents inapplicable from the patentee himself to the alleged equivalent. Claim vitiation therefore causes the public-notice function to take a backseat in the equivalence analysis. Accordingly, by removing claim vitiation from its inquiry in *Bicon*, the Federal Circuit implicitly emphasized that preserving the public-notice function remained at the forefront in its equivalence analysis.<sup>208</sup>

#### b) Illustrating a New Limiting Principle

Additionally, and more importantly, the Federal Circuit structured its equivalence analysis to illustrate a new limiting principle on the doctrine of equivalents.<sup>209</sup> Immediately preceding its application of specific exclu-

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206. With respect to the frusto-spherical limitation, there is nothing in the file history of the '731 patent to suggest that the frusto-spherical limitation was added to avoid the prior art. See U.S. Patent No. 5,749,731 File History (filed Jan. 16, 1996). It therefore appears that the patent drafter could have claimed the structure of the abutment more broadly. It is difficult to determine why the patent drafter failed to do so. One plausible explanation is that the patent drafter presumed that the recitation of the structure of the abutment in the preamble would not limit the claim. This explanation is supported by the fact that *Diro* argued on appeal that the abutment does not limit the claim in any way. See *Bicon II*, 441 F.3d at 949. Another possible explanation is that the patent drafter did not anticipate any barriers to the application of the doctrine of equivalents to the abutment limitation.

207. See *Sage Prods., Inc. v. Devon Indus.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997) (“[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.”).

208. Preserving the public-notice function has been an important objective of the Federal Circuit for some time. See *Meurer & Nard*, *supra* note 10, at 1978-79.

209. Cf. Posting of Thomas Fairhall to Patently-O Patent Law Blog, *Federal Circuit Further Limits Doctrine of Equivalents under “Specific Exclusion” Principle*, [http://patentlaw.typepad.com/patent/2006/04/federal\\_circuit.html](http://patentlaw.typepad.com/patent/2006/04/federal_circuit.html) (Apr. 2, 2006) (“[T]he Court [sic] invoked a new exclusion principle essentially foreclosing coverage under the Doctrine [sic] [of Equivalents] in cases where a claim contains a detailed recitation of structure . . .”). The blog seems to focus more on the “specific exclusion principle” as a

sion, the Federal Circuit concluded that “[a] claim that contains a detailed recitation of structure is properly accorded correspondingly limited recourse to the doctrine of equivalents.”<sup>210</sup> Having instituted this new principle, which may be termed the “detailed structure rule,” the Federal Circuit intended to illustrate how it might work in practice. Specific exclusion rather than claim vitiation served as the proper means to do so. Because the detailed structure rule emphasizes that the claim language causes the limited application of the doctrine of equivalents, the principle is clearly related to specific exclusion. As further evidence of this connection, the detailed structure rule also focuses on the public-notice function since the recitation of a detailed structure in a patent claim notifies the public that the patentee sought a limited scope of patent protection. Accordingly, the court noted that the detailed structure rule had “special application in a case such as this one.”<sup>211</sup> The claim reciting the frusto-spherical basal portion of the abutment that specifically excluded “distinctly different and even opposite shapes”<sup>212</sup> was a detailed recitation of structure claim.<sup>213</sup> As such, the claim was accorded no recourse to the doctrine of equivalents because it disclaimed the excluded subject matter.<sup>214</sup> Arguably, the detailed structure rule applies whenever a structural claim limitation specifically excludes an element.

On the other hand, had the Federal Circuit applied claim vitiation in its equivalence analysis, it would not have been able to illustrate this new principle without obfuscating the application of the detailed structure rule. Because the application of claim vitiation depends on the alleged equivalent itself, whether the claim contains a detailed recitation of structure is not the focus of the analysis. Accordingly, if the detailed structure rule applies in a case involving claim vitiation, it is simply coincidental.

### **B. Implication of the Detailed Structure Rule**

The detailed structure rule increases the Federal Circuit’s arsenal of principles limiting the doctrine of equivalents. Adhering to the rationales of the other limiting doctrines, this rule allows the Federal Circuit to shift the balance of the doctrine of equivalents policy debate further towards the public-notice function. Section III.B.1 examines whether the detailed

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doctrine as opposed to the adoption of a “new exclusion principle” created where a claim contains a detailed recitation of structure.

210. *Bicon II*, 441 F.3d at 955.

211. *Id.*

212. *Id.*

213. *See id.*

214. *See id.*

structure rule changes anything. Section III.B.2 analyzes the application of the detailed structure rule. Sections III.B.3 and III.B.4 consider the effect that the principle will have on claim drafting and patent litigation respectively.

1. *Does the Detailed Structure Rule Actually Change Anything?*

According limited recourse to the doctrine of equivalents for a detailed structure claim is arguably a minor development of prior principles. The case law contains considerable support for rules that emphasize that a narrow claim limitation deserves a limited scope of equivalence.<sup>215</sup> The general contours of the detailed structure claim therefore existed in precedent. Nevertheless, the Federal Circuit had never explicitly limited the application of the doctrine of equivalents for specific claims; the restrictive principles only applied generally. Accordingly, this minor change over precedent may be significant because it fills a void in the equivalence inquiry by targeting detailed structure claims. Accused infringers now have a specific argument to make if faced with a patent holder asserting equivalence to a detailed structure claim. The availability of such a defense will be especially important when the other limiting principles would provide the defendant no recourse.

2. *Application of the Detailed Structure Rule*

Because of the ambiguous language of the detailed structure rule, it is difficult to predict how the Federal Circuit will apply the principle in later cases. The decision in *Bicon* shows that a claim reciting a particular shape that specifically excludes distinctly different and opposite shapes falls under the detailed structure rule.<sup>216</sup> However, this illustration provides little guidance for discerning the scope of the rule because it merely reiterates

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215. See, e.g., *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) (“Whether the result of the All Limitations Rule, prosecution history estoppel, or the inherent narrowness of the claim language, many limitations warrant little, if any, range of equivalents.” (citations omitted)); *Tanabe Seiyaku Co. v. Int’l Trade Comm’n*, 109 F.3d 726, 732 (Fed. Cir. 1997) (“The sharply restricted nature of the claims has much to do with the scope we accord to the doctrine of equivalents.”); *Sage Prods. Inc. v. Devon Indus.*, 126 F.3d 1420, 1424 (Fed. Cir. 1997):

[F]or a patentee who has claimed an invention narrowly, there may not be infringement under the doctrine of equivalents in many cases, even though the patentee might have been able to claim more broadly. If it were otherwise, then claims would be reduced to functional abstracts, devoid of meaningful structural limitations on which the public could rely.

*Id.*

216. *Bicon II*, 441 F.3d at 955.

an application of specific exclusion. Furthermore, a review of the post-*Bicon* case law reveals that the courts have yet to apply the detailed structure rule. Predicting the application of the detailed structure rule therefore requires that one address the following questions: what type of claim constitutes a "detailed recitation of structure" and what does "correspondingly limited recourse to the doctrine of equivalents" mean?

With respect to a "detailed recitation of structure," a narrow reading implies that only claims having the most specific structural claim limitations (e.g., convex, frusto-spherical basal surface) will be those containing a "detailed recitation of structure." On the other hand, a broad interpretation suggests that any recitation of structure is a detailed recitation of structure. Accordingly, any claim describing a shape (e.g., a circular device) or size (e.g., forty-five angstroms wide) constitutes a detailed structure claim. Because an expansive interpretation of the rule seems too drastic for even the Federal Circuit,<sup>217</sup> a narrow or intermediate reading of the rule is likely to apply.

Regarding the "correspondingly limited recourse to the doctrine of equivalents" condition, one interpretation implies that a detailed structure claim warrants no scope of equivalents at all. However, had the Federal Circuit intended this to be the case, the court arguably would have explicitly precluded any recourse to the doctrine of equivalents in its recitation of the rule. Another interpretation, which is likely the more correct reading, suggests that the scope of equivalents will be inversely proportional to the detail of the structural claim. One can represent this situation using a spectrum that corresponds to the amount of structural detail in a claim. Thus, on one boundary, there is a completely generic structural claim limitation (e.g., a box). Here, the broad claim deserves a large scope of equivalents. In contrast, the other boundary of the spectrum represents an extremely detailed structural claim limitation (e.g., convex, frusto-spherical basal surface portion). At this end, the narrowly written claim warrants very limited or no recourse under the doctrine of equivalents.

On another note, the *Bicon* court did not clarify whether the detailed structure rule is a question of law. Because each one of the court's limiting principles, with the exception of the all-elements rule, is a matter of law, it is likely that the Federal Circuit will hold that the detailed structure rule is also a question to be determined by the court. As further support for this prediction, the court seems better suited than the jury to determine whether a claim contains a detailed recitation of structure, given its role in claim

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217. *Cf. supra* note 1.

construction.<sup>218</sup> Consequently, in its application of the detailed structure rule as a matter of law, the court may perform its equivalence inquiry without referring to the function-way-result or the insubstantial differences tests.<sup>219</sup>

### 3. *The Effect of the Detailed Structure Rule on Claim Drafting*

Because patent drafters seek to write claims as broadly as possible,<sup>220</sup> the detailed structure rule arguably will have a miniscule effect on claim drafting. Nevertheless, because of the Federal Circuit's explicit assertion that a claim containing a detailed recitation of structure will receive limited recourse to the doctrine of equivalents, the detailed structure rule should be on a patent drafter's checklist. Dependent claiming<sup>221</sup> is likely the most effective means of drafting to avoid limiting the scope of equivalents allotted to a detailed structural limitation. Accordingly, the patent drafter should write a structural claim limitation as broadly as possible in an independent claim, ensuring that she reference the shape of a limitation as generically as possible if necessary to do so at all. The patent drafter may then subsequently narrow the structural limitations through dependent claims. While the broad claim limitation will likely preclude application of the detailed structure rule, the narrower claim limitations provide the patentee with alternative means to assert infringement should a court invalidate the generic claim.

### 4. *The Effect of the Detailed Structure Rule on Litigation*

Because the Federal Circuit has not yet outlined the scope of the detailed structure rule, either the patentee or the accused infringer can use the rule to her advantage with the proper argument. The patentee may make a strong textual case for interpreting the detailed structure rule such that it only applies to extremely detailed structural claim limitations and that "limited recourse" clearly implies some recourse. The fact that the

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218. See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (noting that claim construction is a matter of law exclusively for the court) (en banc), *aff'd*, 517 U.S. 370 (1996).

219. See *supra* Part I.B.1 (noting that the function-way-result and insubstantial differences tests are factual inquiries).

220. Cf. *Dratler, supra* note 135, at 320 ("Of course a patentee has every incentive to draft claims as broadly as possible, since the claims determine the scope of the legal monopoly that the patent provides.").

221. See 35 U.S.C. § 112 (2000) ("[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.").

*Bicon* court used specific exclusion to illustrate the detailed structure rule is good supporting evidence for the first part of this argument.

On the other hand, the accused infringer will want to assert that any recitation of structure is a detailed recitation of structure which warrants limited, if any, recourse to the doctrine of equivalents. To support a broad interpretation of what constitutes a detailed recitation of structure, the accused infringer should argue that the application of the detailed structure rule to specific exclusion cases as mentioned in *Bicon* was merely a convenient illustration of a detailed structure claim rather than a limitation of the rule. Furthermore, the accused infringer may assert that a detailed structural claim limitation specifically excludes an alleged equivalent independent of whether the limitation is binary. As support for this argument, the accused infringer can reference Judge Bryson's holding in *Bicon* that the frusto-spherical abutment limitation (non-binary) specifically excluded a frusto-conical abutment.<sup>222</sup>

#### IV. CONCLUSION

In its adoption of the detailed structure rule, the Federal Circuit is continuing its effort to steadily impair the doctrine of equivalents. While the court has yet to delineate the scope of the detailed structure rule, the general contours of the doctrine suggest that the principle will not have as drastic of an effect on the doctrine of equivalents as some of the other limiting principles. Nevertheless, an accused infringer will certainly want to include this new rule in her current arsenal of doctrine of equivalents defenses given its potential applicability against any structural claim. In the event that the district court rejects the defense, the defendant can take comfort knowing that the biggest critic of the doctrine of equivalents is only an appeal away.

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222. See *Bicon, Inc. v. Straumann Co. (Bicon II)*, 441 F.3d 955-56 (Fed. Cir. 2006); *supra* Section III.A.1. In applying specific exclusion in this instance, Judge Bryson may have intended to broaden the principle by combining it with the detailed structure rule.

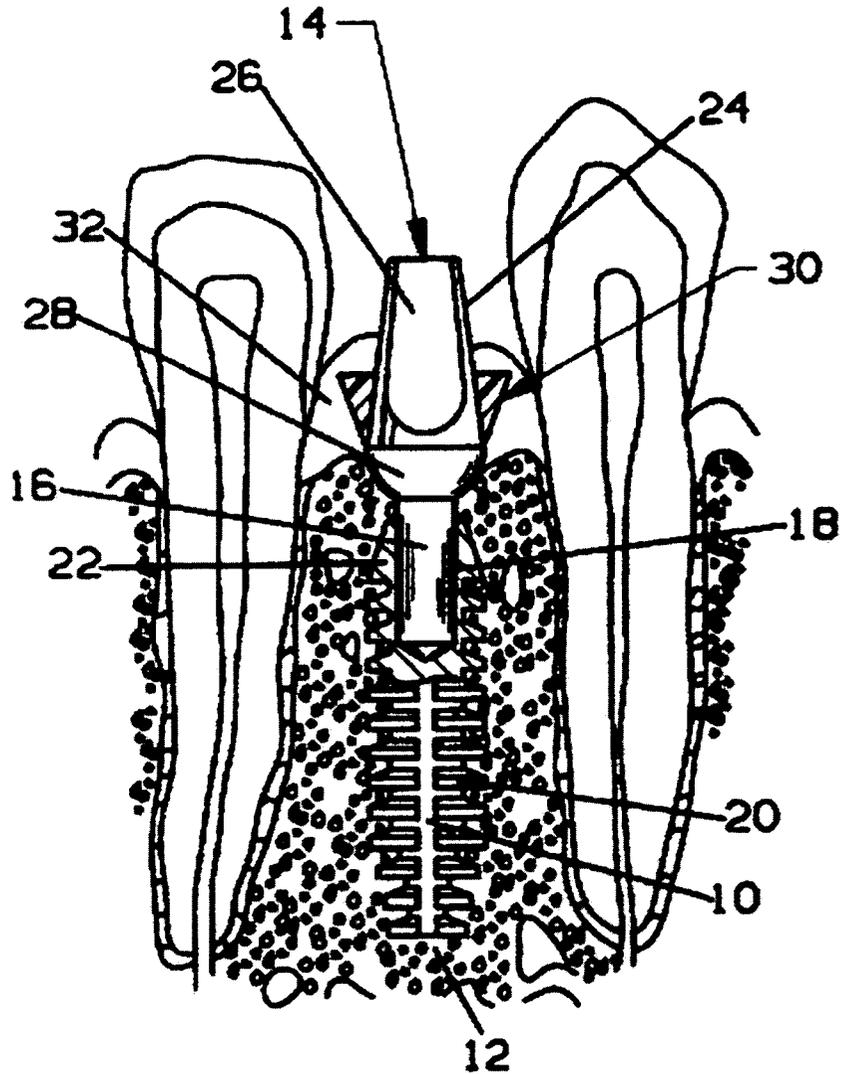


Figure 1: '731 Invention.<sup>223</sup>



Figure 2: Straumann Abutment (A), Straumann Root Member (B), and Straumann Abutment Attached to Straumann Root Member (C).<sup>224</sup>

223. U.S. Patent No. 5,749,731 fig.1 (filed Jan. 16, 1996).

224. *Bicon II*, 441 F.3d at 954.

**Appendix A.1:** Survey of Specific Exclusion Cases in the Federal Circuit.<sup>225</sup>

Case	Opinion Date	Opinion Author	Dissenting Opinion	Alleged Disclaimer in Specification or Claim?	Specific Exclusion Applied?
Dolly, Inc. v. Spalding & Evenflo Cos., 16 F.3d 394 (Fed. Cir. 1994).	2/8/94	Rader	N/A	Claim	Yes
Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573 (Fed. Cir. 1996).	1/11/96	Michel	N/A	Claim	Yes
Wiener v. NEC Elecs., Inc., 102 F.3d 534 (Fed. Cir. 1996).	12/6/96	Rader	N/A	Claim	Yes
Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F.3d 1547 (Fed. Cir. 1997).	7/2/97	Rader	Lourie (in part)	Claim	Yes
Sage Prods., Inc. v. Devon Indus., 126 F.3d 1420 (Fed. Cir. 1997).	9/18/97	Rader	N/A	Claim	Yes
Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309 (Fed. Cir. 1998).	6/30/98	Lourie	N/A	Claim	No

225. The table lists those cases in which the Federal Circuit has considered application of the specific exclusion rule. Where the court applied the doctrine, specific exclusion was the sole reason or one of the rationales for a finding of no infringement under the doctrine of equivalents. The survey involved some degree of subjectivity, as the Federal Circuit did not always note that it was applying specific exclusion even though its analysis resembled the rule. Cases in which the Federal Circuit considered specific exclusion after reversing the district court's claim construction were not considered.

Moore, U.S.A., Inc. v. Standard Register Co., 229 F.3d 1091 (Fed. Cir. 2000).	9/22/00	Michel	Newman (in part)	Claim	Yes
SciMed Life Sys. v. Advanced Cardiovascular Sys., 242 F.3d 1337 (Fed. Cir. 2001).	3/14/01	Bryson	N/A	Specification	Yes
Senior Techs., Inc. v. R.F. Techs., Inc., 76 Fed. Appx. 318 (Fed. Cir. 2003).	9/17/03	Clevenger	N/A	Claim	Yes
Gaus v. Conair Corp., 363 F.3d 1284 (Fed. Cir. 2004).	4/1/04	Bryson	N/A	Specification	Yes
Novartis Pharms. Corp. v. Abbott Labs., 375 F.3d 1328 (Fed. Cir. 2004).	7/8/04	Prost	Bryson	Specification	Yes
Asyst Techs. Inc. v. Emtrak, Inc., 402 F.3d 1188 (Fed. Cir. 2005).	3/22/05	Bryson	N/A	Claim	Yes
Bicon, Inc. v. Straumann Co., 441 F.3d 945 (Fed. Cir. 2006).	3/20/06	Bryson	N/A	Claim	Yes
Cook Biotech Inc. v. ACell, Inc., 460 F.3d 1365 (Fed. Cir. 2006).	8/18/06	Prost	N/A	Claim	Yes

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