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Freedman Seating Co. and the Claim Vitiation Doctrine

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Freedman Seating Co. and the Claim Vitiation Doctrine*

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I. INTRODUCTION

The doctrine of equivalents was created to enlarge the scope of actionable patent infringement by providing a method for identifying non-literal infringement that should be prohibited and punishable by law, and in so doing “[t]o temper unsparing logic and prevent an infringer from stealing the benefit of the invention.”1 Under the doctrine of equivalents, if equivalence exists between the elements of an accused invention and the claimed elements of a patented invention, non-literal infringement also exists.2 The enlarged scope of patent protection provided by the doctrine of equivalents has been tailored to operate

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* The author would like to thank Daniel H. Shulman and Donald W. Rupert although he does not know them. This Note simply explores the ideas they first expressed. The author also thanks Professor Lisa Ramsey and all the Law Review editors for their insight and help. An obligatory, yet heartfelt, thank you to his family as well.

2. Id.
within certain restraining principles, such as the all elements rule, prosecution history estoppel, and specification estoppel.\footnote{3}

After nearly a half century of application and interpretation of the doctrine of equivalents, a new restraining doctrine emerged from the Supreme Court’s 1997 opinion in Warner-Jenkinson Co. v. Hilton Davis Chemical Co.\footnote{4} This new doctrine has been dubbed the claim vitiation doctrine.\footnote{5} The claim vitiation doctrine drastically limits the doctrine of equivalents by permitting courts to decide, as a matter of law, whether or not an alleged equivalent element of an invention vitiates a claim limitation of a patented invention.\footnote{6} If a court finds that a patent claim must be vitiated in order to find equivalency, the alleged infringing element cannot be an equivalent under the doctrine of equivalents, and infringement has not occurred.\footnote{7} The claim vitiation doctrine, as it is interpreted in many Federal Circuit opinions, arguably destroys any plausible use of the doctrine of equivalents, making any infringement

3. The all elements rule requires equivalency determination on an element-by-element basis instead of by examining the involved inventions as a whole. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997). The prosecution history estoppel rule provides that a patentee cannot reclaim a scope of equivalents which he had given up, for certain reasons, during the prosecution of the patent. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 733-34 (2002). Specification estoppel provides that where a “specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.” SciMed Life Sys. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). The specification is a written portion of the patent that describes the invention. The specification “names all the parts or components of the invention, describes how they work, and illustrates how they work together to perform the invention’s function.” ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE, 112-13 (3d ed. Aspen Publishers 2003). A patent’s claims are elements of the invention’s precise legal definition. Id. The claims set the boundaries of the protection and rights that the patent confers. Id. Patent claims can be viewed as limitations on what the patent protects. Id.


6. See Warner-Jenkinson, 520 U.S. at 39 n.8; Shulman & Rupert, supra note 5, at 464-65.


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less than literal infringement very difficult to prove. This new doctrine has taken on several forms which are inconsistently applied throughout the Federal Circuit, plaguing patentees, their attorneys, and the courts. A recent case, Freedman Seating Co. v. American Seating Co., exemplifies the confusion the claim vitiation doctrine creates. By examining Freedman within the framework of the other claim vitiation doctrine cases it becomes apparent that changes must be made to the existing state of the law.

The confusion and inconsistency created by the several interpretations of the claim vitiation doctrine can be remedied by either abandoning the doctrine or by creating one explicit version of the claim vitiation doctrine to be predictably and evenhandedly applied. The simplest and most effective solution would be express abandonment of the doctrine by judicial ruling. The Federal Circuit or Supreme Court should trace the doctrine back to its roots in *Warner-Jenkinson* and explicitly decry the portion of that ruling that lead to the claim vitiation doctrine.

II. THE DOCTRINE OF EQUIVALENTS

The modern form of the doctrine of equivalents was first set forth in 1950 by the Supreme Court in *Graver Tank & Manufacturing Co. v. Linde Air Products Co.* The Court reasoned that limiting recovery for patent infringement solely to literal infringement situations left open the opportunity for an “unscrupulous copyist” to make insubstantial changes to the patented material without being subject to the penalties for infringement. The Court set forth the doctrine of equivalents to curb the actions of such unscrupulous copyists. The doctrine of equivalents attempted to balance protection for the patentee against the statutory

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11. Shulman & Rupert, supra note 5, at 488.
requirement that patent claims state clear boundaries of the scope of the patent granted.  

This balanced protection is achieved by examining the differences between the claims of the patent and the corresponding elements of the alleged infringing invention.  

If the variations between the two are so insubstantial that the two elements could be considered equivalent, then infringement pursuant to the doctrine of equivalents has occurred.  

The doctrine should be invoked when an alleged infringing element “performs substantially the same function in substantially the same way to obtain the same result” as the patented subject matter.  

This function-way-result examination is the traditional doctrine of equivalents analysis by which juries make equivalency determinations.  

In Warner-Jenkinson Co. v. Hilton Davis Chemical Co., the Supreme Court reexamined and refined its analysis of the doctrine of equivalents.  

Warner-Jenkinson and Hilton Davis both were in the manufacturing dyes business.  

Hilton Davis held a patent19 for an ultra-filtration process to remove impurities from dyes which operated within a certain pH range.  

Hilton Davis had filed an amendment to its claims during patent prosecution, which created a controversy when competitor Warner-Jenkinson developed a similar process.  

The Court held that the amendment which created the limitation of “at a pH from approximately 

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14. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33-34 (1997); Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998). A patent only provides protection for what is described in its claims. See 35 U.S.C. § 112 (2000). Section 112 also requires that a patent include (1) a written description of the invention, (2) a description of the best mode of the invention envisioned by the inventor, and (3) that the patent as written enable one skilled in the art to reduce it to practice without undue experimentation.  

15. Multiform Desiccants, 133 F.3d at 1480.  


18. Derek Walter, Prosecution History Estoppel in the Post-Festo Era: The Increased Importance of Determining What Constitutes a Relevant Narrowing Claim Amendment, 20 BERKELEY TECH. L.J. 123, 125 (2005). In addition to the way-function-result test, the Federal Circuit has occasionally applied a more general “insubstantial differences” test.  

19. The patent held was United States Patent No. 4,560,746 (the ‘746 patent).  

20. Id. at 21-22.  

21. See id. at 22-23.
6.0 to 9.0” did not preclude the use of the doctrine of equivalents to find infringement by Warner-Jenkinson’s process which operated below a pH of 6.0.22 Warner-Jenkinson’s process operated at a pH lower than the range claimed in Hilton Davis’s patented process, and therefore did not literally infringe.23 However, the Court could have found Warner-Jenkinson’s process to be infringing under the doctrine of equivalents as long as it held that there was equivalence between the elements of the accused process and the claimed elements of the patented invention.24 This boiled down to the question: Was a pH lower than 6.0 equivalent to “a pH from approximately 6.0 to 9.0?” If the pH lower than 6.0 performed substantially the same function in substantially the same way to achieve the same result as the pH from approximately 6.0 to 9.0, the limitations would be considered equivalent, leading a court to conclude infringement existed.

In Warner-Jenkinson, the Court addressed two concepts important to the operation of the doctrine of equivalents. First, the Court held the doctrine required equivalency on an element-by-element basis instead of by examining the involved inventions as a whole.25 This element-by-

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22. See id. at 32-34. The issue was actually remanded to the Federal Circuit to determine the reason behind Hilton Davis’s amendment regarding the operational pH level. See id. at 34. If the amendment, which narrowed the scope of the patent, was made for reasons relating to patentability, such as to avoid the prior art, then prosecution history estoppel would prevent Hilton Davis from claiming infringement by the doctrine of equivalents. See id. at 33. Put another way: If Hilton Davis had to limit its claimed pH range to obtain the patent, Hilton Davis then lost the ability to claim an equivalency that would expand the patent’s scope to encompass the range it gave up. This illustrates how prosecution history estoppel limits the doctrine of equivalents. Id. at 33-34.

23. See id. at 23. Warner-Jenkinson’s process operated at a pH of 5.0, and Hilton Davis conceded that there was no literal infringement. Id.

24. See Id. at 24-25. The Supreme Court did not actually make a determination on the doctrine of equivalents issue due to the possibility of prosecution history estoppel. See id. at 41; supra note 23 and accompanying text. The matter was remanded to the Federal Circuit Court of Appeals where it was held that, although the matter required remand to the district court for determination of the prosecution history estoppel issue, “sufficient record evidence to support the jury’s verdict of equivalence” existed. Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 114 F.3d 1161, 1164 (Fed. Cir. 1997). The Court found there was “substantial record evidence to prove that one of ordinary skill in the art would know that performing ultrafiltration at a pH of 5.0 will allow the membrane to perform substantially the same function in substantially the same way to reach substantially the same result as performing ultrafiltration at 6.0.” Id. Accordingly, “[t]he jury’s finding that the accused process with a pH of 5.0 is equivalent to the claimed process with a lower limit of approximately 6.0 does not therefore vitiate the claim limitation.” Id.

25. See Warner-Jenkinson, 520 U.S. at 29. “Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the
element analysis is referred to as the all elements rule. The all elements rule acts as a restraint on the doctrine of equivalents. If equivalency is determined based on the invention as a whole, the scope of the invention as stated in the patent claims can be enlarged beyond its claims. However, “a distinction can be drawn . . . between substitution of an equivalent for a component in an invention and enlarging the metes and bounds of the invention beyond what is claimed.” By determining equivalency on an element-by-element basis, the courts do not enlarge a patent beyond the scope of its claims.

Second, the Court reaffirmed the validity of prosecution history estoppel, which also serves as a restraint on the doctrine of equivalents. Prosecution history estoppel is a well-established limitation on non-literal infringement that applies to amendments made to a patent application “in order to meet objections in the Patent Office, based on references to the prior art.” Estoppel applies “where the initial claims were ‘rejected on the prior art,’ . . . and where the allegedly infringing equivalent element was outside of the revised claims and within the prior art that formed the basis for the rejection of the earlier claims.”

The Court reaffirmed both of these concepts and the ways in which they interact with the doctrine of equivalents without expressing concern that the doctrine needed further limitation. The Court voiced its satisfaction with the existing state of the doctrine of equivalents, stating that “[s]o long as the doctrine of equivalents does not encroach beyond doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole.” This element-by-element equivalency may enlarge the scope of individual elements while not expanding the actual scope of the invention as a whole, whereas determining equivalency at the invention level would run a greater risk of enlarging the scope of the invention as a whole. See id. This element-by-element determination was first implemented in the Federal Circuit in Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 935-36 (Fed. Cir. 1987).


See Warner-Jenkinson, 520 U.S. at 29.


See id. (quoting Hilton Davis, 62 F.3d at 1573-74).

See id. “The ‘scope’ is not enlarged if courts do not go beyond the substitution of equivalent elements.” Id.

See id. at 30, 34. Prosecution history estoppel is the rule that a patentee cannot reclaim a scope of equivalents which he had given up, for reasons of patentability, during the prosecution of the patent. See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 733-34 (2002).

See id. Non-literal infringement, as opposed to literal infringement, is simply another way of referring to infringement under the doctrine of equivalents. See Windbrella Prods. v. Taylor Made Golf Co., 414 F. Supp. 2d 305, 311 (S.D.N.Y. 2006).


Warner-Jenkinson, 520 U.S. at 31 (quoting Keystone Driller Co. v. Nw. Eng’g Corp., 294 U.S. 42, 48 n.6 (1935)).

See id.
the limits just described [concerning the all elements rule], or beyond related limits . . . , we are confident that the doctrine will not vitiate the central functions of the patent claims themselves.\(^{36}\)

In addition to its thorough examination of the all elements rule and prosecution history estoppel, \textit{Warner-Jenkinson} is an influential case in that it contains a footnote which led to the formation and resulting permutations of the claim vitiation doctrine.\(^{37}\) The influential footnote reads:

\[\text{[U]nder the particular facts of a case, if prosecution history estoppel would apply or if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court, as there would be no further} \text{ material} \text{ issue for the jury to resolve . . . . We leave it to the Federal Circuit how best to implement procedural improvements to promote certainty, consistency, and reviewability to this area of the law.}\(^{38}\)

When read in context this footnote appears to be an aside commenting on the concern that jury verdicts on infringement issues are developed in a “black-box” and therefore the actual method by which a jury reaches its verdict is unreviewable.\(^{39}\) The Court allays this concern by explaining how a court can take the infringement issue out of the jury’s hands in some instances.\(^{40}\) It simply reiterates the standard used in summary judgment: “partial or complete judgment should be rendered by the court, as there would be no further} \text{ material} \text{ issue for the jury to resolve.}\(^{41}\)

36. \textit{Id.} at 29-30. The “related limits” referred to are the limits imposed by prosecution history estoppel. \textit{See id.} at 30.

37. \textit{See id.} at 39 n.8; Shulman & Rupert, \textit{supra} note 5, at 463-64.


39. \textit{See id.} The Court actually prefaces this footnote by stating “[w]ith regard to the concern over unreviewability due to black-box jury verdicts, we offer only guidance, not specific mandate.” \textit{Id.} The term “black-box” refers to the undisclosed manner by which juries come to a verdict. \textit{See} Kimberly A. Moore, \textit{Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box}, 11 \textit{Fed. Cir. B.J.} 209, 249 (2002). Black-box verdicts pose a problem for appellate review because the court lacks insight into the jury’s fact-finding or reasoning. \textit{See id.} The Federal Circuit deals with this problem “by presuming that the jury found all facts in the record in support of the verdict it chose. This evaluative process makes it much more difficult to overturn the black box jury verdict on appeal than it is to overturn a judge verdict.” \textit{Id.} This presumption may lead courts to unknowingly sustain jury verdicts based on flawed reasoning and misunderstanding of both factual issues and the application of the law to the facts. \textit{See id.}

40. \textit{See Warner-Jenkinson}, 520 U.S. at 39 n.8. The Court essentially reviews the appropriateness of granting summary judgment. \textit{See id.}

41. \textit{Id.}
nor does it seem to call for the formation of new limitations on the existing doctrine. However, as a result of interpretation of this language, a new limitation to the doctrine of equivalents was formed: the claim vitiation doctrine.

III. THE CLAIM VITIATION DOCTRINE

Many Federal Circuit decisions cite the language in the Warner-Jenkinson footnote as the authority behind the claim vitiation doctrine. The claim vitiation doctrine can be generally described as a limitation on the doctrine of equivalents decided as a question of law by a judge; the judge determines whether a purported equivalent vitiates a claim limitation. Under the claim vitiation doctrine, non-literal infringement cannot occur as a matter of law if a finding of equivalency would vitiate or render a claim in the pre-existing patent meaningless.

The application of the claim vitiation doctrine has diverged into two frequently used forms and other less frequently used forms. The two frequently applied interpretations of the claim vitiation doctrine can be referred to as the Lourie and Michel rules, named after the Federal Circuit Judges who advocated them most prominently.

A. The Lourie Rule

The Lourie rule treats every word in a claim as a “limitation on the scope of the patent that must be met in an identical way.” This rule represents a drastic narrowing of the scope of the doctrine of equivalents. It has been applied to preclude any doctrine of equivalents

42. As previously mentioned, the Court stated “[s]o long as the doctrine of equivalents does not encroach beyond the limits just described [(the all elements rule)], or beyond related limits [(prosecution history estoppel)] . . . we are confident that the doctrine will not vitiate the central functions of the patent claims themselves.” Id. at 29-30.

43. See Shulman & Rupert, supra note 5, at 464-65, for a much more comprehensive analysis and explanation of all things relating to the emergence and existence of the claim vitiation doctrine.


46. See Shulman & Rupert, supra note 5, at 464-65.

47. Id.

48. Id. at 464.

49. Id. at 465.
infringement where structural or spatial elements have been rearranged. This removal of any possible equivalency for a spatial or structural rearrangement necessarily follows from this rule because the claim of any particular arrangement in a patent would be vitiated by any other arrangement of the same physical elements.

For example, in *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.* the Federal Circuit affirmed a summary judgment finding of non-infringement because a specific surgical stapler mechanism was located on opposite ends of staplers which were otherwise the same. Writing for the court, Judge Lourie said the mechanism “is located at the far end of the [stapler], near the rear of the stapler. Because the rear of the stapler is opposite the longitudinal slots, no reasonable jury could have found that the USSC lockout was substantially ‘connected to said longitudinal slots’.” Judge Lourie reasoned that for a specific mechanism located on one of the devices to be equivalent to the same mechanism located on the other end of the other device would necessarily vitiate the part of the claim designating the position of that mechanism. Therefore, the court agreed that there was no genuine issue of material fact concerning the possibility of equivalency and upheld the non-infringement verdict.

This rationale does not sound illogical until the effect this strict interpretation can have on the doctrine of equivalents becomes apparent. According to the Lourie rule, an “unscrupulous copyist” may make an

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50. See id. at 465-73. The Shulman & Rupert article states that the Lourie Rule has been applied in the following cases: Cooper Cameron Corp. v. Kvaerner Oilfield Prods., Inc., 291 F.3d 1317 (Fed. Cir. 2002); Durel Corp. v. Osram Sylvania, Inc., 256 F.3d 1298, 1305 (Fed. Cir. 2001); DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314 (Fed. Cir. 2001); Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309 (Fed. Cir. 1998); Semitool, Inc. v. Novellus Sys., Inc., 44 F. App’x 949 (Fed. Cir. 2002) (unpublished opinion); Smith Eng’g Co. v. Eisenmann Corp., 28 F. App’x 958, 967 (Fed. Cir. 2002) (applied in Judge Linn’s dissent) (unpublished opinion). Id.

51. This outcome arose in *Cooper Cameron* where the pre-existing patent claimed a certain object “between the two plugs.” 291 F.3d at 1319. The alleged infringing device had the same object positioned above the two plugs. *Id.* The court upheld a summary judgment of non-infringement under the doctrine of equivalents without actually examining whether ‘above’ and ‘between’ could be substantially equivalent. See *id.* at 1322. Instead it stated that “[w]ere we to ignore Cooper’s decision to claim in the ‘707 patent a workover port that connects to the assembly only ‘between’ the plugs, we would vitiate that limitation and thereby run afoul of the all-limitations rule.” *Id.*

52. 149 F.3d 1309, 1318-19 (Fed. Cir. 1998).

53. *Id.* at 1319.

54. See *id.*

55. *Id.*
insubstantial change in the positioning or arrangement of structural elements without subjection to the penalties of infringement, even if the new positioning or arrangement of the structural elements performs substantially the same function in substantially the same way to achieve substantially the same result as the patented invention. This result runs contrary to the policy behind the doctrine of equivalents. The factual inquiry into the surrounding circumstances playing a part in the traditional doctrine of equivalents analysis is entirely removed by woodenly holding that an arrangement of structural elements different than the arrangement claimed in a patent cannot be equivalent. This could lead to situations in which a “fraud on the patent” can be easily achieved by making insignificant changes in the overall invention.

Consequently, the Lourie application of the claim vitiation doctrine creates considerable problems for patentees and patent applicants in drafting claims for structural or spatial limitations that provide meaningful protection from the unscrupulous copyist. Drafting a claim for a structural limitation that will withstand Lourie’s interpretation of the claim vitiation doctrine necessitates intricate and confusing wording. Requiring this type of drafting makes it very difficult to comply with one of the basic tenets of patent prosecution—that claims be clear and definite.

B. The Michel Rule

The second major interpretation of the claim vitiation doctrine, the Michel rule, can be simply stated: “An equivalent vitiates a claim

56. The policy behind the doctrine of equivalents is the balancing of protection for patentees from insubstantial changes to the subject matter of the patent against the public notice requirements of 35 U.S.C. § 112. See 35 U.S.C. § 112 (2000); Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33-34 (1997); Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1480 (Fed. Cir. 1998). That policy is part of the grander scheme to encourage innovation set forth in the U.S. Constitution: “The Congress shall have the power . . . to promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” U.S. CONST. art. I, § 8, cl. 8.

57. In the Graver Tank case the Court stated that “[t]he essence of the doctrine is that one may not practice a fraud on a patent.” Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950).

58. The Shulman & Rupert article provides an example of this problem using the facts from Cooper Cameron. See supra note 51 (summarizing the facts of Cooper Cameron). [R]ather than claim a workover port between two plugs, one might claim a workover port disposed in a functional spatial relationship relative to the two plugs. The applicant would then be obligated to disclose in the specification that a functional spatial relationship relative to the two plugs is preferably between, but could also include above or below.

Shulman & Rupert, supra note 5, at 482. This disclosure certainly is neither the easiest nor most understandable way to word a claim for this spatial arrangement.

limitation if the equivalent is excluded from the literal scope of the claim language." 60 Writing for the Federal Circuit in Athletic Alternatives, Inc. v. Prince Manufacturing, Inc., Judge Michel explained: “As a corollary to the ‘all limitations’ rule [i.e., the all elements rule] . . . we have held that ‘the concept of equivalency cannot embrace a structure that is specifically excluded from the scope of the claims.’” 61 This ruling against the possibility of equivalency was achieved without any doctrine of equivalents analysis of whether the alleged infringing features performed substantially the same function, in substantially the same way, to achieve substantially the same result as the subject of the patent. 62

Applying the Michel interpretation of the claim vitiation doctrine, practically any numerical limitation in a claim will specifically exclude anything outside of the numerical limitation from equivalency consideration. For example, if the Michel rule was applied to the facts of the Warner-Jenkinson case, 63 a pH of less than 6.0 could not by law be equivalent to a pH from 6.0 to 9.0 even if the two pH levels performed substantially the same function, in substantially the same way, to achieve substantially the same result. This outcome provides insight as to the Court’s intentions in Warner-Jenkinson. Had the Court intended its ruling to result in a claim vitiation doctrine like that which the Michel rule advocates, the Court would have ruled contrary to its actual holding. The Court could not have intended the resultant Michel rule and still have held as it did that a pH of less than 6.0 could be equivalent to a pH from 6.0 to 9.0. 64

60. Shulman & Rupert, supra note 5, at 473.
61. 73 F.3d 1573, 1582 (Fed. Cir. 1996) (quoting Dolly, Inc. v. Spalding & Evenflo Co., 16 F.3d 394, 400 (Fed. Cir. 1994)).
62. Id. A clear example of the absurdity of strictly applying the Michel rule is provided in Moore U.S.A., Inc. v. Standard Register Co., 229 F.3d 1091 (Fed. Cir. 2000). Moore had a patent on envelopes with strips of adhesive “extending the majority of the lengths” of the envelopes. Id. at 1095. The envelopes accused of infringement were similar to Moore’s except they had strips of adhesive which only ran 47.8% of the length of the envelope. Id. at 1097. The court was not persuaded by evidence that the two envelopes were insubstantially different from one another. Id. at 1119. Instead, the court held that the majority limitation would be vitiated by a finding that 47.8% was equivalent to 50.1% (a majority of the length). Id. at 1106. Therefore, as a matter of law, 47.8% of the length could not be equivalent to 50.1% of the length, and there could be no infringement. Id.
63. See supra, Part II (discussing Warner-Jenkinson at a greater length).
64. See Shulman & Rupert, supra note 5, at 478.
This formulation of the doctrine creates a large burden for patentees and patent applicants whose claims include numerical limitations or ranges. In order for a patent with claims for numerical limitations or ranges to receive meaningful protection, the claims must be drafted as broadly as possible, which can lead to difficulty meeting the patent prosecution requirement that claims be clear and definite. However, its application is not limited to patents claiming numerical ranges. It may effectively preclude traditional doctrine of equivalents analysis in any infringement action where there is a literal absence of a particular limitation regardless of the significance of that absence.

C. Two Less Frequently Applied Forms of the Claim Vitiation Doctrine

Two other general interpretations of the claim vitiation doctrine exist which have not been used as frequently as the Lourie or Michel interpretations. The first, referred to as the no limitation rule, applies the claim vitiation doctrine to preclude any equivalent that requires reading a limitation in the claims of a patent so broadly that the limitation no longer acts as a limitation at all. For example, in *Tronzo v. Biomet, Inc.*, a claim for a device with a “generally conical outer surface” was not equivalent to a device with a hemispherical outer surface. There was no equivalence because if generally conical was given a wide enough range of equivalents to include a hemispherical shape, there would be no limitation at all. The court made this decision even though the two shapes would function in substantially the same way to achieve substantially the same result.

65. *Id.* at 483.
67. Shulman & Rupert, *supra* note 5, at 476-77. Judge Michel demonstrated this line of reasoning in his dissent in *Riles v. Shell Exploration & Production Co.*, 298 F.3d 1302, 1314-17 (Fed. Cir. 2002) (Michel, J., dissenting). The patent at issue claimed “metal-to-metal bearing contact” as the connecting point between two pylons. *Id.* at 1306. The alleged infringing product used a thin layer of wood between the two pylons. *Id.* Judge Michel argued the literal absence of the “metal-to-metal” limitation precluded any possible finding of equivalency regardless of the insignificance of the differences between the metal-to-metal contact and the metal-to-wood contact. *Id.* at 1314. Judge Michel stated, “[i]t stands to reason, then, that the claimed ‘metal-to-metal’ contact is missing altogether from the defendant’s structure, meaning equivalent infringement as a matter of law simply cannot occur.” *Id.* at 1315. The majority disagreed, finding infringement under the doctrine of equivalency. *Id.* at 1309-11.
69. *Id.* at 479.
70. See *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1160 (Fed. Cir. 1998).
71. See *id*.
72. See *id*. 390
The second less prevalent interpretation, the significant limitation rule, applies the claim vitiation doctrine with varying strictness according to the limitation’s importance.\textsuperscript{73} If the limitation in the patent is significant, any deviations from the literal scope of the claim would vitiate the limitation.\textsuperscript{74} The more important the claim, the less likely it will be found to have equivalents; therefore it would receive less protection from infringement than claims deemed less important.\textsuperscript{75} The main problem that arises under this application of the claim vitiation doctrine is unpredictability in both the determination of the claim’s importance and the amount of deviation from a significant limitation that would result in a finding of vitiation.

IV. \textit{Freedman Seating Co. v. American Seating Co.}

\textit{Freedman Seating Co. v. American Seating Co.} exemplifies how the existence of various claim vitiation doctrine interpretations have made non-literal infringement cases more confusing and unpredictable. Freedman owns United States Patent No. 5,492,389 (the ‘389 patent) on a retractable seat designed for use in public transportation.\textsuperscript{76} Freedman sued American Seating for patent infringement based on the production and sale of its similarly designed seat.\textsuperscript{77} The American Seating seat did not infringe literally upon Freedman’s ‘389 patent, but the district court held on summary judgment that the seat infringed under the doctrine of equivalents.\textsuperscript{78} The court found that the differences between the elements comprising the two seats were insubstantial, and therefore the seats were equivalent\textsuperscript{79} because they performed “substantially the same function in substantially the same manner, to achieve substantially the same result.”\textsuperscript{80}

\begin{itemize}
\item \textsuperscript{73} Shulman & Rupert, supra note 5, at 479.
\item \textsuperscript{74} Id.
\item \textsuperscript{75} Id.
\item \textsuperscript{76} Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1351-53 (Fed. Cir. 2005).
\item \textsuperscript{77} Id. at 1351.
\item \textsuperscript{78} Id. at 1355.
\item \textsuperscript{79} Id.
\item \textsuperscript{80} Id. This is the traditional function-way-result test for equivalency from \textit{Warner-Jenkinson Co. v. Hilton Davis Chemical Co.}, 520 U.S. 17, 38 (1997) (citing \textit{Union Paper-Bag Mach. Co. v. Murphy}, 97 U.S. 120, 125 (1877)).
\end{itemize}

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The infringement dispute hinged upon whether the mechanisms used to support the two seats and to make the seats foldable could be considered equivalents. 81 The two designs differed in the mechanism used to fold the seats into a vertical position. 82 Freedman utilized a mechanism termed a “slider crank,” 83 whereas American Seating’s mechanism was known as a “fourth link.” 84 Neither mechanism is novel in and of itself, and both are “four bar mechanism” type designs. 85

Freedman’s argument, which was accepted by the district court on summary judgment, was based on the traditional doctrine of equivalents analysis set forth in Graver Tank and Warner-Jenkinson. 86 Freedman asserted that the term “slidably mounted” need not be read out of the claims to find that American Seating’s “rotatably mounted” element is an equivalent. 87 Examining the situation in light of the traditional function-way-result test for equivalence, Freedman stated that the functions of the two mechanisms were substantially the same, providing support for the seat while allowing the seat to move between the horizontal and vertical positions. The mechanisms performed these functions in substantially the same way by providing the support bars with movable ends; both mechanisms achieved the same result, repositioning the support bars to allow the seats to be folded upright. 88

Before the claim vitiation doctrine, this analysis would most likely not have been challenged. 89 However, the Federal Circuit, relying on a combination of claim vitiation doctrine theories, not only challenged the analysis, but reversed the summary judgment ruling for infringement under the doctrine of equivalents and remanded with instructions to enter

81. Freedman Seating, 420 F.3d at 1355.
82. Id. at 1353-54.
83. The slider crank mechanism is comprised of four diagonal bars with one end fixed to the seat’s frame at a pivot point and a movable end mounted in a vertical track. When folding the seat up or down, the movable end slides along the track while the end fixed to the seat simply rotates. Id. at 1352-53.
84. The fourth link mechanism does not utilize any sliding motion. Instead it depends on three sets of rotation joints: one at the seat base, one at the wall or vertical frame, and one somewhere between the other two along the diagonal bars connecting the seat base and the wall or vertical frame. Id. at 1354. See infra Appendix, for diagrams of the two designs.
85. Four bar mechanisms are common to engineering and consist of four rigid bars with pin (rotational) joints at their ends. The relative lengths of the bars are varied to achieve different results. D. Cheshire, Mechanism Design, http://www.staffs.ac.uk/~entdgc/wildfire/docs/mechanisms.pdf.
86. Freedman Seating, 420 F.3d at 1355, 1357.
87. Id. at 1357.
88. Id.
89. This assertion is based on the district court’s grant of summary judgment in favor of Freedman after examining the situation using the traditional doctrine of equivalents analysis. Id. at 1355.
a judgment of non-infringement for American Seating. 90 The Federal Circuit drew this conclusion by applying the claim vitiation doctrine in a manner which can be described as a combination of the Lourie rule, the no limitation rule, and the significant limitation rule. 91 The necessity of using this medley of legal theories and doctrines to determine whether two devices are alike raises a warning flag about the state of the law. The outcome of such a determination is difficult to predict, and it is unlikely that courts could apply this legal tangle consistently. Nevertheless, the Federal Circuit came to its conclusion that no reasonable jury could find equivalency between the folding mechanisms of the two seats in this manner.

The court found the basic authority for its analysis, like most decisions based on the claim vitiation doctrine, in the Warner-Jenkinson opinion and the all elements rule. The court stated that the all elements rule “holds that an accused product or process is not infringing unless it contains each limitation of the claim, either literally or by an equivalent.” 92 The court then concluded that the all elements rule requires that “an element of an accused product or process is not, as a matter of law, equivalent to a limitation of the claimed invention if such a finding would entirely vitiate the limitation.” 93 This was the court’s generalized restatement of the claim vitiation doctrine.

The court then proceeded to acknowledge the confusion that surrounds the use of the claim vitiation doctrine, stating:

There is no set formula for determining whether a finding of equivalence would vitiate a claim limitation, and thereby violate the all limitations rule. Rather, courts must consider the totality of the circumstances of each case and determine whether the alleged equivalent can be fairly characterized as an insubstantial change from the claimed subject matter without rendering the pertinent limitation meaningless.94

90. See id. at 1364.
91. See id. at 1357-62.
92. Id. at 1358 (citing Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997)).
93. Id. (citing Warner-Jenkinson, 520 U.S. at 29).
94. Id. at 1359 (citing Novartis Pharm. Corp. v. Abbott Labs., 375 F.3d 1328, 1338-39 (Fed. Cir. 2004)) (“Permitting such an element in the accused product to come within the bounds of the claimed element would impermissibly extend the scope of the claim language beyond what the patentee actually claimed.”); Moore U.S.A., Inc. v. Standard Register Co., 229 F.3d 1091, 1106 (Fed. Cir. 2000); Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309, 1317-21 (Fed. Cir. 1998); Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1425 (Fed. Cir. 1997).
The court did, however, provide some insight into making this determination based on the “totality of the circumstances” of the case.\footnote{95} The court stated that circumstances including the simplicity of the structure, the specificity of the claim, and the foreseeability of variation at the time of the claim filing should be taken into consideration.\footnote{96} It suggested that no vitiation occurs if there is only a subtle difference in degree provided by limitations as opposed to vitiation where there is a “clear, substantial difference or difference in kind.”\footnote{97} The court also placed the burden of specific claim drafting squarely on the patentee: “it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.”\footnote{98}

The court then applied these guidelines to the facts in \textit{Freedman}. It stated that a finding of equivalency would vitiate the limitation designating Freedman’s mechanism as “slidably mounted”\footnote{99} because the movable ends of American Seating’s seat could only rotate, not slide.\footnote{100} The court declared this structural difference was not a “subtle difference in degree,” but was instead a clear, substantial difference or difference in kind.\footnote{101} In essence, this conclusion applies the Lourie version of the claim vitiation doctrine. Treating every word of a claim as a limitation precludes the possibility of finding an equivalency between “slidably” and “rotatably.”

This equivalency problem probably could have been avoided by carefully drafting Freedman’s claim with language precluding application of the claim vitiation doctrine. Freedman knew of other similar types of four bar mechanisms that could foreseeably have been used in this kind of invention.\footnote{102} For example, Freedman could have claimed a support member incorporating a four bar mechanism rotatably or slidably mounted to the seatbase. Yet Freedman specifically chose the language that it did.\footnote{103} Freedman’s choice of claim language served the public notice function of the patent and “[m]embers of the public were therefore justified in relying on this specific language in assessing the bounds of the claim.”\footnote{104}

The court’s analysis also incorporates features of the two less frequently applied interpretations of the claim vitiation doctrine. In
accord with the no limitations rule, the court relied on the claim vitiation doctrine to preclude finding an equivalent which would require a limitation to be read so broadly that the limitation no longer acts as a limitation at all. Specifically, the court refused to find that the “slidably mounted” limitation could be read so broadly as to include “rotatably mounted” or any other known form of four bar mechanism. This narrow reading of the claim is based on the public’s need to rely on the specific language used to mark the scope of the claim: “we think that to now say the claims include other four bar mechanisms under the doctrine of equivalents would unjustly undermine the reasonable expectations of the public.”

The second less frequently applied interpretation, the significant limitation rule, may also have played an unstated part in the court’s analysis. That view applies the claim vitiation doctrine with varying strictness according to the importance of the limitation. If the limitation in the patent is significant, any deviations from the literal scope of the claim would vitiate the limitation. In this case the limitations concerning the folding mechanism of the seat were the very heart of the patent. Without those limitations, there would be no patent: Freedman would just have a normal seat. According to the significant limitation rule, because the limitations concerning the folding mechanism of Freedman’s seat are so important to its patent, any deviation from the literal scope of the claim vitiates the limitation.

The Federal Circuit presented a well-reasoned argument to support its finding of non-infringement in the Freedman case. However, the broad range of available precedent and the multiple versions of the claim vitiation doctrine that have been expressed can arguably support a finding of non-infringement in practically all non-literal patent

105. See id. at 1361-62. This reasoning coincides with the court’s conclusions in Tronzo v. Biomet, Inc., 156 F.3d 1154, 1160 (Fed. Cir. 1998). In Tronzo, the court held that finding a hemispherical cup equivalent to a limitation for a “generally conical outer surface” would vitiate that limitation. Id. Broadening the scope of what “conical” means to the point where it would include “hemispherical” renders the “conical” limitation meaningless. Id. Therefore, “conical” and “hemispherical” cannot, as a matter of law, be equivalents. Id.

106. Freedman Seating, 420 F.3d at 1361-62.

107. Id. at 1362.

108. Shulman & Rupert, supra note 5, at 479.

109. See Freedman Seating, 420 F.3d at 1352-53.
infringement disputes. Judges and attorneys can browse through the case law and pick the version of the claim vitiation doctrine that best fits their needs. The available theories are simply too broad, and without restraint could lead to the vitiation of the doctrine of equivalents itself.

Too much confusion exists and unpredictability abounds. Patentees, attorneys, and judges do not receive enough guidance from the existing state of the law to pursue their respective goals with any real confidence in the outcome. The procedural posture of *Freedman* highlights this unpredictability. The district court ruled that no reasonable jury could find there was non-infringement and the Federal Circuit Court ruled no reasonable jury could find there was infringement. Two such polar opposite holdings, reached after applying what is supposed to be the same law, are symptomatic of unclear law.

A further source of concern is that both courts decided the case on summary judgment, yet the issue of whether the accused product contained each claims limitation is supposedly a question of fact for a jury to decide. Summary judgment is appropriate only where no reasonable jury could return a verdict for the nonmoving party. Yet in this case the district court granted a summary judgment of non-infringement, and the Federal Circuit Court granted a summary judgment of infringement. The level of disagreement between the courts on a matter meant to be decided by a jury is disconcerting.

The problems arising from the various applications of the claim vitiation doctrine raise the question of whether such a doctrine should exist when there are already limitations in place reining in the doctrine of equivalents where necessary. The established limitations provided by

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110. Dennis Crouch, *supra* note 8 (stating that “[e]very defendant now has an arguable vitiation position—since, by definition, the [Doctrine of Equivalents] is only applied against products that do something different than what is required by the claims”). An opinion to the contrary was also voiced: “the [Freedman] decision merely confirms that the Doctrine cannot be used to avoid a claimed linkage between two structural elements that would otherwise destroy its effect.” William F. Hienze, *Doctrine of Equivalents Must Not ‘Vitiate’ Limitation*, I/P UPDATES, http://www.ip-updates.blogspot.com/2005/08/doctrine-of-equivalents-must-not.html (Aug. 12, 2005) (last visited Feb. 20, 2006).

111. See RF Del., Inc. v. Pac. Keystone Techs., Inc., 326 F.3d 1255, 1266 (Fed. Cir. 2003) (citing Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353 (Fed. Cir. 1998). Patent infringement is a two part inquiry. *Id.* (citing Renishaw PLC v. Marposs Societa’ Per Azioni, 158 F.3d 1243, 1247-48 (Fed. Cir. 1998). First, as a question of law, the court must construe the claims of the patent. *Id.* Second, as a question of fact, the accused product or process must be examined to determine whether or not it contains each limitation of the claims. *Id.; see also* Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309, 1317-21 (Fed. Cir. 1998) (assessing infringement under the doctrine of equivalents depends on the facts of each case).

prosecution history estoppel,\textsuperscript{113} specification estoppel,\textsuperscript{114} and the all elements rule limit the doctrine of equivalents relatively easily in comparison to the claim vitiation doctrine. The \textit{Freedman} case could have been decided using the traditional doctrine of equivalents and its limiting constructs less confusingly and more predictably than the analysis supplied under the claim vitiation doctrine.

\textbf{V. CONCLUSION}

The \textit{Freedman} case demonstrates the degree of confusion and unpredictability the claim vitiation doctrine creates. It is not clear that the Supreme Court in \textit{Warner-Jenkinson} intended to create the claim vitiation doctrine. It is also unclear whether the doctrine is a necessary or beneficial limitation on the doctrine of equivalents. As it now stands, the claim vitiation doctrine causes more trouble than it is worth. The state of the doctrine merits either abandonment or clarification to the extent it will result in uniform application.

To clarify the law, the Federal Circuit should make an en banc ruling in the next case on the Federal Circuit’s docket that addresses these complicated issues involving the claim vitiation doctrine and the doctrine of equivalents.\textsuperscript{115} If the Federal Circuit retains the claim vitiation doctrine in some form it should not embrace either the Lourie or Michel rules because both lack the flexibility and fact-intensive investigation that are at the core of the doctrine of equivalents.\textsuperscript{116} Instead, the doctrine should focus on the type of examination used in the no limitation rule. The infringement issue should be taken away from a jury only when an equivalent would truly vitiate a limitation in a claim to the point that no reasonable jury could find that the alleged equivalent performs substantially the same function in substantially the same way to achieve substantially the same result as the patented subject matter.

\begin{itemize}
\item \textsuperscript{113} Prosecution history estoppel estops a patentee from reclaiming limitations that were removed or narrowed during prosecution for patentability reasons. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 733-34 (2002).
\item \textsuperscript{114} In specification estoppel, when the specification “makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.” SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys, Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001).
\item \textsuperscript{115} Shulman & Rupert, \textit{supra} note 5, at 486.
\item \textsuperscript{116} \textit{Id.} at 482-83.
\end{itemize}
Had *Freedman* been decided using only the no limitation rule interpretation of the claim vitiation doctrine, the outcome could have been the same and, in any event, the analysis would have been more clear and concise.

Compare the more sensible remedy for the problems arising from the claim vitiation doctrine: complete abandonment. No real, compelling argument exists that creation of the doctrine was intended in the first place. The doctrine’s genesis in *Warner-Jenkinson* arguably appeared in dicta. When read in context, the language from which the doctrine developed simply seems to be commentary on when to apply summary judgment in doctrine of equivalents cases. It does not appear to be an expression of the Court’s dissatisfaction with the then-existing state of the law, nor does it appear to call for a new doctrine decreasing the jury’s role in equivalency factual determinations. As reflected in the *Freedom* case, this less-than-solid foundation, coupled with the practical difficulties that have arisen from multiple interpretations of the claim vitiation doctrine, prompts the conclusion that the doctrine should no longer be applied. To effectively extinguish the claim vitiation doctrine, the Supreme Court should expressly disapprove it or the Federal Circuit should reinterpret it in a different light. At the same time the Court or Federal Circuit could reaffirm the traditional function-way-result test for equivalency, reaffirm the doctrine of equivalents-limiting constructs of prosecution history estoppel, specification estoppel and the all elements rule, and reestablish the doctrine of equivalents as it existed before the emergence of the claim vitiation doctrine.

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VI. APPENDIX

American Seating Company’s seat design with the “fourth link” mechanism. Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1352 (Fed. Cir. 2005).
