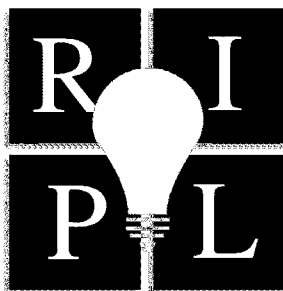


# THE JOHN MARSHALL REVIEW OF INTELLECTUAL PROPERTY LAW



## STEP-PLUS-FUNCTION: JUST WHAT HAVE WE STEPPED INTO?

PAUL R. KITCH

### ABSTRACT

While most attorneys have heard of means-plus-function, most have not heard of or given much thought to its sibling, step-plus-function. Both claims arise under the same section of the patent laws, namely 35 U.S.C. § 112, ¶ 6. While means-plus-function limitations are directed to structural limitations and most often appear in apparatus claims, step-plus-function limitations are directed to steps and most often appear in method claims. Means-plus-function limitations generally arise when the patentee chooses to recite a “means for” performing a specified or recited function rather than reciting the structure or material that performs that function. Step-plus-function limitations, on the other hand, potentially arise when a claim drafter chooses to recite a “step for” performing a specified or recited function. This article analyzes the limited but complex jurisprudence surrounding step-plus-function limitations. Finally, the article provides tips for avoiding step-plus-function limitations and proposes that recent decisions may allow courts to step away from Judge Rader’s complicated analysis, so courts may neither have to confront the “difficulty of distinguishing acts from functions” nor engage in a “careful analysis of the limitation in the context of the overall claim and the specification” in order to discern whether a step-plus-function limitation exists.

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## STEP-PLUS-FUNCTION: JUST WHAT HAVE WE STEPPED INTO?

PAUL R. KITCH\*

### INTRODUCTION

Step-plus-function. While most patent attorneys have heard of it, they probably have never really given it much thought. It is quite possible that they believe they have never drafted or even encountered a step-plus-function limitation. Until recently I had never encountered an allegation that a limitation of a method claim actually was a step-plus-function limitation. So just what is a step-plus-function limitation? Is this a new thing? What are the ramifications of a limitation being found to be a step-plus-function limitation? What does the Federal Circuit have to say about step-plus-function and how often has it found a limitation to be a step-plus-function limitation? This paper will attempt to answer these questions.

In summary, the Federal Circuit case law in this area can be confusing. In his concurring opinion in *Seal-Flex, Inc. v. Athletic Track & Court Construction*,<sup>1</sup> Judge Rader proposed procedures for determining whether a claimed step is a step-plus-function limitation.<sup>2</sup> While generally helpful, his suggestion for determining whether step-plus-function applies appears to unnecessarily complicate matters, makes it difficult for patentees to cleanly avoid potential step-plus-function invocation, and obscures the scope of claims in contravention of the desired public notice function of claims.

After addressing these questions, this paper provides some suggestions for drafting claims to reduce the chances that a limitation will be found to be a step-plus-function limitation against the wishes of the patentee.

Finally, the paper concludes that some of the decisions of the Federal Circuit may allow courts to avoid having to employ Judge Rader's proposed procedures and thus avoid having to engage in the "careful analysis of [a] limitation in the context of the overall claim and the specification"<sup>3</sup> in an effort to distinguish "acts" from "functions."

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<sup>1</sup> 172 F.3d 836 (Fed. Cir. 1999).

<sup>2</sup> *Id.* at 848.

<sup>3</sup> *Id.* at 849.

## I. WHAT IS A STEP-PLUS-FUNCTION LIMITATION?

So what is a step-plus-function limitation? A step-plus-function limitation is the sibling of the more commonly known means-plus-function limitation. They both arise from the same section of the patent laws, namely, 35 U.S.C. § 112, ¶ 6 (“§ 112, ¶ 6”). This section provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.<sup>4</sup>

While means-plus-function limitations are directed to structural limitations and most often appear in apparatus claims, step-plus-function limitations are directed to steps and most often appear in method claims. Means-plus-limitations typically arise when the claim drafter chooses to recite a “means for” performing a specified or recited function rather than reciting the structure or material that performs that function. For example, a claim may recite “means for fastening two pieces of wood together” instead of reciting a particular connecting means such as a nail, a screw, or glue. Step-plus-function limitations, on the other hand, potentially arise when a claim drafter chooses to recite a “step for” performing a specified or recited function.

## II. ARE STEP-PLUS-FUNCTION LIMITATIONS A NEW THING?

No. And yes.

Step-plus-function limitations are a creature of § 112, ¶ 6. This paragraph of section 112 has been in existence since it was enacted in 1952, albeit, it was paragraph 3 at that time.<sup>5</sup> Accordingly, the concept of step-plus-function is over fifty years old.

On the other hand, the attempted invocation of § 112, ¶ 6 by accused infringers to narrow the scope of method claims asserted in litigation is a fairly new trend. The Federal Circuit did not rule on whether a limitation was a step-plus-function limitation until 1997.<sup>6</sup> Since that time, the Federal Circuit has substantively addressed potential step-plus-limitations in only seven more cases plus once in a concurring opinion.<sup>7</sup> However, the Federal Circuit has ruled on whether a limitation

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<sup>4</sup> 35 U.S.C. § 112, ¶ 6 (2006).

<sup>5</sup> See *Caterpillar Inc. v. Detroit Diesel Corp.*, 961 F. Supp. 1249, 1253 (N.D. Ind. 1996) (“In 1952, Congress reacted to the *Halliburton* [Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1 (1946)] decision by enacting paragraph six of § 112 (then paragraph 3) . . .”).

<sup>6</sup> *Serrano v. Telular Corp.*, 111 F.3d 1578, 1583 (Fed. Cir. 1997).

<sup>7</sup> See *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1580–84 (Fed. Cir. 1997); *Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 172 F.3d 836, 840–52 (Fed. Cir. 1999) (addressing the step-plus-function limitations in the concurring opinion); *Generation II Orthotics Inc. v. Med. Tech. Inc.*, 263 F.3d 1356, 1363–69 (Fed. Cir. 2001); *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1028–33 (Fed. Cir. 2002); *Masco Corp. v. United States*, 303 F.3d 1316, 1326–28 (Fed. Cir. 2002); *Utica Enters., Inc. v. Fed. Broach & Mach. Co.*, 109 F. App’x 403, 409–11 (Fed. Cir. 2004); *Cardiac Pacemakers, Inc. v. Saint Jude Med., Inc.*, 381 F.3d 1371, 1381–83 (Fed. Cir. 2004).

was a step-plus-function limitation in only six cases.<sup>8</sup> Accordingly, with respect to the Federal Circuit, step-plus-function is still in its infancy.

### III. WHAT ARE THE RAMIFICATIONS OF A LIMITATION BEING FOUND TO BE A STEP-PLUS-FUNCTION LIMITATION?

The Federal Circuit case law is clear on how § 112, ¶ 6 has to be parsed when dealing with a potential means-plus-function limitation as opposed to a potential step-plus-function limitation.<sup>9</sup> In this regard, it is clear that with respect to the language of the statute “structure and material go with means, acts go with steps.”<sup>10</sup> Accordingly, when dealing with a potential means-plus-function limitation, § 112, ¶ 6 can be read as:

An element in a claim for a combination may be expressed as a means . . . for performing a specified function without the recital of structure [or] material . . . in support thereof, and such claims shall be construed to cover the corresponding structure [and/or] material . . . described in the specification and equivalents thereof.<sup>11</sup>

Conversely, when dealing with a potential step-plus-function limitation, § 112, ¶ 6 can be read as:

An element in a claim for a combination may be expressed as a . . . step for performing a specified function without the recital of . . . acts in support thereof, and such claim shall be construed to cover the corresponding . . . acts, described in the specification and equivalents thereof.<sup>12</sup>

Accordingly, when a limitation is found to be a step-plus-function limitation, the literal scope of that limitation is narrowed from covering all acts for performing the recited function to only those acts described in the specification for performing the recited function and equivalents of those acts.<sup>13</sup>

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<sup>8</sup> See *Serrano*, 111 F.3d at 1583; *O.I. Corp.*, 115 F.3d at 1583; *Generation II Orthotics Inc.*, 263 F.2d at 1369; *Epcon Gas Sys., Inc.*, 279 F.3d at 1033; *Masco Corp.*, 303 F.3d at 1328; *Utica Enters.*, 109 F. App'x at 411. It is noted that in 1998 the Federal Circuit did decline an interlocutory appeal that was alleged to present novel step-plus-function issues. *Microchip Tech., Inc., v. Scenix Semiconductor, Inc.*, Nos. 558, 559, 1998 WL 743923, at \*\*1–2 (Fed. Cir. Sept. 8, 1998).

<sup>9</sup> *O.I. Corp.*, 115 F.3d at 1582–83.

<sup>10</sup> *Id.* at 1583.

<sup>11</sup> 35 U.S.C. § 112, ¶ 6 (2006).

<sup>12</sup> *Id.*

<sup>13</sup> *Utica Enters.*, 109 F. App'x at 410.

IV. HOW OFTEN HAS THE FEDERAL CIRCUIT FOUND A LIMITATION TO BE  
A STEP-PLUS-FUNCTION LIMITATION?

Never! Not even once!

V. WHAT DOES THE FEDERAL CIRCUIT HAVE TO SAY ABOUT  
STEP-PLUS-FUNCTIONS?

As explained above, the Federal Circuit has been confronted with alleged step-plus-limitations in nine cases. These cases and their treatment of step-plus-function are reviewed chronologically in detail below.

A. *Serrano v. Telular Corp.*

The first case in which the Federal Circuit had to address step-plus-function was *Serrano v. Telular Corp.*,<sup>14</sup> which was decided on April 25, 1997. The panel consisted of Judges Mayer, Clevenger, and Lourie and the opinion was written by Judge Lourie.<sup>15</sup>

The disputed method claim limitation was in claim 1 of U.S. Patent No. 4,775,997 ("997 patent").<sup>16</sup> A similar means-plus-function limitation in a system claim in a related patent was also at issue.<sup>17</sup> Claim 1 of the '997 patent is reproduced below with the disputed limitation emphasized along with a chart comparing the disputed method and system claim limitations.

1. A method of interfacing a telephone communications-type device which is capable of providing a touch-tone/rotary dial-type telephone signal with a radio transceiver used in a telephone communication system wherein the transceiver is capable of radio communication with a remote radio transmitter-receiver system that is part of a telephone network, said method comprising:

coupling a transceiver to a telephone communications-type device which is capable of providing touch-tone/rotary dial-type telephone signals in order to allow for at least one-way communication between the transceiver and the telephone communications-type device;

said step of coupling comprising converting each dialed number of the telephone communications-type device into digital data;

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<sup>14</sup> 111 F.3d 1578 (Fed. Cir. 1997).

<sup>15</sup> *Id.* at 1579.

<sup>16</sup> *Id.* at 1581.

<sup>17</sup> *Id.* at 1580.

said step of coupling further comprising ***automatically determining at least the last-dialed number of the telephone number dialed on the telephone communications-type device***; and

sending each digitally-converted number formed by said step of converting to the transceiver for subsequent transmittal.<sup>18</sup>

U.S. Patent No. 4,922,517	U.S. Patent No. 4,775,997
<p>1. A system for interfacing a telephone communications-type device . . . the system comprises:</p> <p>. . .</p> <p><b><i>determination means</i></b> coupled with the telephone number digital conversion means <b><i>for automatically determining the last digit</i></b> of the group of telephone digits provided at the transceiver coupling means . . . .<sup>19</sup></p>	<p>1. A method of interfacing a telephone communications-type device . . . , said method comprising:</p> <p>. . .</p> <p>further comprising <b><i>automatically determining at least the last-dialed number</i></b> of the telephone number dialed on the telephone communications-type device; . . . .<sup>20</sup></p>

The entirety of the Federal Circuit's treatment of the step-plus-function issue is as follows:

[The method claim] includes a determining step rather than a determination means, but it is not drafted in "step plus function" form. That is because it does not recite a function. *See* 35 U.S.C. § 112, ¶ 6 (1994). Rather, it recites only the act of determining a last-dialed digit. Therefore, we must simply apply the claim language to the accused devices free from the limiting requirements of section 112, ¶ 6.<sup>21</sup>

As can be seen, the court simply concluded the limitation was not in step-plus-function form because it did not recite a function, but instead recited an act.<sup>22</sup> From this passage it is unclear whether the determining factor for concluding that § 112, ¶ 6 did not apply was that (1) the phrase "step for" was not used, (2) the limitation did not set forth a function in addition to the recited step of "determining," (3) the gerund "determining" was an act instead of a function, or (4) some combination of these factors. As will be seen, however, succeeding Federal Circuit cases have embraced the first factor and at least initial decisions embraced an analysis which focused on determining whether a recited gerund constitutes a function or an act.

<sup>18</sup> U.S. Patent No. 4,775,997 col. 15 (filed Apr. 8, 1987) (emphasis added).

<sup>19</sup> U.S. Patent No. 4,922,517 cols. 15–16 (filed Sept. 15, 1988) (emphasis added).

<sup>20</sup> U.S. Patent No. 4,775,997 col. 15 (filed Apr. 8, 1987) (emphasis added).

<sup>21</sup> *Serrano*, 111 F.3d at 1583.

<sup>22</sup> *Id.*

Also, while the Federal Circuit did not address the parallelism between the language of the “means for” limitation and the method limitation, subsequent cases including the very next case do.

*B. O.I. Corp. v. Tekmar Co.*

The next case to address step-plus-function, *O.I. Corp. v. Tekmar Co.*,<sup>23</sup> was decided on May 22, 1997, less than one month after the *Serrano* decision. The panel consisted of Judges Rich, Mayer, and Lourie and the opinion was written again by Judge Lourie.<sup>24</sup>

The method claim at issue was claim 9 of U.S. Patent No. 5,358,557, which is reproduced below with the disputed language emphasized:

9. A method for removing water vapor from an analyte slug passing between a sparge vessel, trap and gas chromatograph, comprising the steps of:

(a) ***passing the analyte slug through a passage*** heated to a first temperature higher than ambient, as the analyte slug passes from the sparge vessel to the trap; and

(b) ***passing the analyte slug through the passage*** that is air cooled to a second temperature below said first temperature but not below ambient, as the analyte slug passes from the trap to the gas chromatograph.<sup>25</sup>

The district court applied § 112, ¶ 6 to the disputed claim language because it thought that claim 9 was “expressed strictly in terms of the steps for performing the specified function of removing water vapor from an analyte slug.”<sup>26</sup> The Federal Circuit rejected this conclusion and found the “passing” limitations were “not drafted in step-plus-function form and thus not subject to this provision.”<sup>27</sup>

The Federal Circuit engaged in a lengthy discussion of § 112, ¶ 6 and step-plus-functions. First, the court construed the statute and found that “acts go with steps.”<sup>28</sup> Specifically, the court stated:

We interpret the term “steps” to refer to the generic description of elements of a process, and the term “acts” to refer to the implementation of such steps. This interpretation is consistent with the established correlation between means and structure. In this paragraph, structure and material go

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<sup>23</sup> 115 F.3d 1576 (Fed. Cir. 1997).

<sup>24</sup> *Id.* at 1578.

<sup>25</sup> U.S. Patent No. 5,358,557 col. 10 (filed Dec. 9, 1996) (emphasis added).

<sup>26</sup> *O.I. Corp. v. Tekmar Co.*, No. G-95-113, 1996 U.S. Dist. LEXIS 22839, at \*9 (S.D. Tex. June 14, 1996), *aff'd on other grounds*, 115 F.3d 1576 (finding harmless the district court’s error in applying section 112, ¶ 6).

<sup>27</sup> *O.I. Corp.*, 115 F.3d at 1584.

<sup>28</sup> *Id.* at 1583.



with means, acts go with steps.<sup>29</sup>

The court also emphasized that “section 112, ¶ 6, is implicated only when means *plus function* without definite structure are present, and that is similarly true with respect to steps, that the paragraph is implicated only when steps *plus function* without acts are present.”<sup>30</sup>

The court suggests that where a claim recites a series of steps without also reciting corresponding functions, then § 112, ¶ 6 will not apply: “[C]laiming a step by itself, or even a series of steps, does not implicate section 112, ¶ 6. Merely claiming a step without recital of a function is not analogous to a means plus a function.”<sup>31</sup> In this regard, it is noted that in the present case, the Federal Circuit had found “[t]he steps of ‘passing’ are not individually associated in the claim with functions performed by the steps of passing.”<sup>32</sup>

The court also cautioned against construing every method limitation as a step-plus-function limitation or treating every “ing” gerund as a step-plus-function limitation:

We note that the *Halliburton* case concerned an apparatus claim, not a process claim, and we must be careful not to extend the language of this provision to situations not contemplated by Congress. If we were to construe every process claim containing steps described by an “ing” verb, such as passing, heating, reacting, transferring, etc. into a step-plus-function limitation, we would be limiting process claims in a manner never intended by Congress.<sup>33</sup>

The court also rejected using the recitation of a function in the preamble of a claim as a reason for converting individual limitations into step-plus-function or as serving as the function of the individual steps recited thereafter:

The district court considered the statement which appears in the preamble, “removing water vapor from an analyte slug,” as a function which invokes application of section 112, ¶ 6. We do not agree. The preamble statement of the purpose of the overall process does not constitute an associated function for the two “passing” steps of claim 9. Performing a series of steps inherently produces a result, in this case the removal of water vapor from the analyte slug, but a statement in a preamble of a result that necessarily follows from performing a series of steps does not convert each of those steps into step-plus-function clauses. The steps of “passing” are not individually associated in the claim with functions performed by the steps of passing.<sup>34</sup>

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<sup>29</sup> *Id.* at 1582–83.

<sup>30</sup> *Id.* at 1583.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

Significantly, the Federal Court clearly and unequivocally rejected the argument that because the language of a method claim limitation parallels a means-plus-function limitation in another claim, the method claim limitation should also be found to invoke § 112, ¶ 6.<sup>35</sup> In this case, a similarly written apparatus claim was also asserted. This claim and claim 9 are reproduced below.

U.S. Patent No. 5,470,380	U.S. Patent No. 5,358,557
<p>17. An apparatus for removing water vapor from an analyte slug passing between a sparge vessel, trap and analytical instrument, comprising:</p> <p>(a) <i>first means for passing the analyte slug through a passage</i> heated to a first temperature higher than ambient, as the analyte slug passes from the sparge vessel to the trap; and</p> <p>(b) <i>second means for passing the analyte slug through the passage</i> that is air cooled to a second temperature below said first temperature but not below ambient, as the analyte slug passes from the trap to the analytical instrument.<sup>36</sup></p>	<p>9. A method for removing water vapor from an analyte slug passing between a sparge vessel, trap and gas chromatograph, comprising the steps of:</p> <p>(a) <i>passing the analyte slug through a passage</i> heated to a first temperature higher than ambient, as the analyte slug passes from the sparge vessel to the trap; and</p> <p>(b) <i>passing the analyte slug through the passage</i> that is air cooled to a second temperature below said first temperature but not below ambient, as the analyte slug passes from the trap to the gas chromatograph.<sup>37</sup></p>

In the present case, it was agreed that the “first means” and “second means” of claim 17 were means-plus-function limitations.<sup>38</sup> In rejecting the accused infringer’s parallelism argument, the court stated:

We understand that the steps in the method claim are essentially in the same language as the limitations in the apparatus claim, albeit without the “means for” qualification. However, . . . we would not agree . . . that the “parallelism” of the claims means that the method claims should be subject to the requirements of section 112, ¶ 6. Each claim must be independently reviewed in order to determine if it is subject to the requirements of section 112, ¶ 6.<sup>39</sup>

Finally, the court indicates the invocation of § 112, ¶ 6 is optional—a patentee may choose to invoke it or not:

<sup>35</sup> *Id.*

<sup>36</sup> U.S. Patent No. 5,470,380 col. 10 (filed Nov. 28, 1995) (emphasis added).

<sup>37</sup> U.S. Patent No. 5,358,557 col. 10 (filed May 14, 1993) (emphasis added).

<sup>38</sup> *O.I. Corp.*, 115 F.3d at 1580.

<sup>39</sup> *Id.* at 1583.

The statute thus in effect provides that an element in a combination method or process claim may be recited as a step for performing a specified function without the recital of acts in support of the function. Being drafted with the permissive “may,” the statute does not require that steps in a method claim be drafted in step-plus-function form but rather allows for that form.<sup>40</sup>

### C. Seal-Flex, Inc. v. Athletic Track & Court Construction

*Seal-Flex, Inc. v. Athletic Track & Court Construction*<sup>41</sup> was decided on April 1, 1999 *per curiam* by a panel consisting of Judges Newman, Rader, and Bryson.<sup>42</sup> As will be explained below, it is the concurring opinion by Judge Rader which this author believes may have unnecessarily complicated step-plus-function analysis and made its application uncertain. Before, addressing this concurring opinion, the decision of the court will be addressed.

#### 1. Background

Claim 1 of U.S. Patent No. 4,529,622 (“622 patent”) is reproduced below with the limitation in dispute emphasized:

1. A method for constructing an activity mat over a foundation comprising the steps of:

***spreading an adhesive tack coating for adhering the mat to the foundation over the foundation surface:***

spreading a first uniform layer of particulate rubber over the tack coating;

then, in sequence, first applying a liquid latex binder to the previously spread rubber layer in sufficient quantity to coat substantially all rubber particles of said layer then air drying said applied mixture until substantially no liquid is visible, then spreading a succeeding uniform layer of particulate rubber uniformly over the preceding layers; and

continuing the aforesaid sequential application of latex binder, air drying the binder followed by the spreading of a uniform layer of rubber over the preceding layers until the approximate desired thickness for the mat is achieved.<sup>43</sup>

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<sup>40</sup> *Id.*

<sup>41</sup> 172 F.3d 836 (Fed. Cir. 1999).

<sup>42</sup> *Id.* at 838.

<sup>43</sup> U.S. Patent No. 4,529,622 cols. 5–6 (filed Sept. 4, 1984) (emphasis added); *Seal-Flex*, 172 F.3d at 838.

This case was very unusual because both parties agreed during the district court proceeding and on appeal that § 112, ¶ 6 applied to the phrase “*spreading an adhesive tack coating for adhering the mat to the foundation over the foundation surface*.”<sup>44</sup> However, they disagreed whether it implicated step-plus-function or means-plus-function.<sup>45</sup> The jury instructions combined and confused the two.<sup>46</sup> While confusing, it appears that the district court was actually interpreting the phrase “*an adhesive tack coating for adhering the mat to the foundation*” as a means-plus-function limitation.<sup>47</sup> The jury found infringement under § 112, ¶ 6,<sup>48</sup> and this determination was affirmed on appeal.<sup>49</sup>

There was no assertion of non-infringement based on how the adhesive tack coating was spread;<sup>50</sup> but rather, the issue between the parties was whether latex was encompassed by the term “adhesive tack coating.”<sup>51</sup>

## 2. *Per Curiam Opinion*

For the purpose of the appeal, the court accepted that § 112, ¶ 6 applied to this limitation as that was never challenged by the parties below or on appeal.<sup>52</sup> More specifically, the court stated: “Because both parties agree to the application of § 112, ¶ 6, *the only issue before this court* is whether substantial evidence supports the jury finding of equivalence between latex, as used by Athletic Track, and the materials disclosed for performing the “adhering” function in the ’622 patent specification.”<sup>53</sup>

The court found there was substantial evidence that latex was an equivalent of the materials disclosed in the specification and hence affirmed the decision of the jury.<sup>54</sup> The court’s decision did reiterate that “in § 112, ¶ 6, ‘structure’ and ‘material’ are associated with means-plus-function claim elements while ‘acts’ is associated with step-plus-function claim elements.”<sup>55</sup> Additionally, all the judges on the panel agreed that determining whether a method claim limitation invokes § 112, ¶ 6 can be difficult.<sup>56</sup>

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<sup>44</sup> *Seal-Flex*, 172 F.3d at 841–82.

<sup>45</sup> *Id.* at 843 n.3.

<sup>46</sup> *Id.* at 843; *id.* at 847 (Rader, J., concurring).

<sup>47</sup> *Id.* at 843 (“[T]he district court limited the term ‘adhesive tack coating’ to the ‘material described . . . in the specification and equivalents thereof,’ i.e., the ‘suitable tack coating materials’ disclosed in the specification and those which ‘result[] from an insubstantial change which adds nothing of significance to the materials disclosed.’”).

<sup>48</sup> *Id.* (“[T]he jury determined that latex qualified as an equivalent tack coating material to those disclosed in the specification of the ’622 patent.”).

<sup>49</sup> *Id.* at 845.

<sup>50</sup> *Id.* at 844. The accused adhesive tack was actually sprayed on the foundation so there may have actually been an argument that it was not “spread.”

<sup>51</sup> *Id.* at 842.

<sup>52</sup> *Id.* at 843.

<sup>53</sup> *Id.* (emphasis added); *see also id.* at 852 (Bryson, J., and Newman, J., concurring).

<sup>54</sup> *Id.* at 844–45.

<sup>55</sup> *Id.* at 843 (citing *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997)).

<sup>56</sup> *Id.* at 852 (Bryson, J., and Newman, J., concurring) (“[T]he question whether the claim at issue is a step-plus-function claim is a difficult one . . . .”); *id.* at 848 (Rader, J., concurring) (noting “the difficult process of identifying step-plus-function claim elements”); *id.* at 848–49 (Rader, J.,

### 3. Rader's Concurring Opinion

Judge Rader wrote a concurring opinion indicating that he believed the court was obligated to “independently determine whether § 112, ¶ 6 applies to the claim element at issue in this case.”<sup>57</sup> He further stated, “I believe that identifying whether this element is a means-plus-function element, a step-plus-function element, or neither, is crucial to a proper determination of this case.”<sup>58</sup> Judge Rader ultimately concluded that the disputed phrase contained neither a step-plus-function limitation nor a means-plus-function limitation.<sup>59</sup>

Based on the statute, Judge Rader agreed that “acts” goes with “steps.”<sup>60</sup> More specifically, he stated, “[A] claim element deserves step-plus-function treatment when ‘expressed as a . . . step for performing a specified function without the recital of . . . acts in support thereof.’”<sup>61</sup>

While Judge Rader recognized that means and step-plus-function claims elements are different and require distinct analysis,<sup>62</sup> he nonetheless suggested that courts should look to the case law dealing with means-plus-function for guidance<sup>63</sup> even though that law is itself complicated and confusing.<sup>64</sup>

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concurring) (“The difficulty of distinguishing acts from functions in step-plus-function claim elements, however, makes identifying step-plus-function claims inherently more problematic.”).

<sup>57</sup> *Id.* at 847.

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

<sup>59</sup> *Id.* at 851.

<sup>60</sup> *Id.* at 848.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *Id.* (“[T]he language of § 112, ¶ 6 and this court's means-plus-function case law give guidance for determining whether a claim element is in step-plus-function form so as to invoke the statute's claim interpretation requirements.”).

<sup>64</sup> *Id.* at 848–49. Step-plus-function, like means-plus-function, claims are complicated and confusing for federal courts to construe. See *Dawn Equip. Co. v. Ky. Farms Inc.*, 140 F.3d 1009, 1018 (Fed. Cir. 1998) (Plager, J., concurring) (stating that in regard to means-plus-function claims, the “law in this area [is] confused and confusing”); Rudolph P. Hofmann, Jr. & Edward P. Heller, III, *The Rosetta Stone for the Doctrines of Means-Plus-Function Patent Claims*, 23 RUTGERS COMPUTER & TECH. L.J. 227, 232–43 (1997) (discussing the difficulty of using means-plus-function claim language); Scott G. Ulbrich, *Festo, Notice and the Application of Prosecution History Estoppel to Means-Plus-Function Claim Limitations*, 28 WM. MITCHELL L. REV. 1165, 1172 (2002) (“The theoretical analysis of the law applied to means-plus-function is seemingly straightforward. However, because the means-plus-function analysis adds an extra layer of complexity to an already complex patent suit, the application of these principles is often complex and confusing.”); Eva M. Ogielska, Note, *IMS Technology, Inc. v. Haas Automation, Inc. & Kemco Sales, Inc. v. Control Papers Co.*, 16 BERKELEY TECH. L.J. 71, 71 (2001) (stating that “[t]he difficulties of claim interpretation are particularly apparent in the judicial construction of means-plus-function claims”); Jeffrey A. Berkowitz, *Claim Construction Issues In Business Method Patents*, 688 PRAC. L. INST. 295, 336 (2002) (“In the complicated world of claim construction, interpreting the scope of means-plus-function elements under 35 U.S.C. § 112, ¶ 6 can be particularly confusing.”); Lawrence Kass, Comment, *Computer Software Patentability and the Role of Means-Plus-Function Format in Computer Software Claims*, 15 PACE L. REV. 787, 850 (1995) (stating the construing of means-plus-function claims “has bred confusion and controversy”); Evan R. Sotiriou, *35 U.S.C. § 112, ¶ 6—Means For Better Patent Protection*, 47 ST. LOUIS U. L.J. 1065, 1087 (2003) (“The difficulty in construing means-plus-function elements is sometimes cited as a reason to avoid them.”).

That means-plus-function is confusing is also supported by empirical studies. See Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239–42 (2005). Moore's recent study analyzed all precedential, non-precedential, and Rule

Judge Rader himself recognized the process of identifying whether a step is a step-plus-function limitation is a “difficult process.”<sup>65</sup> He even went on to state that the process is even more problematic than for means-plus-function as he believes it is harder to distinguish the recitation of an “act” from the recitation of a “function” as opposed to a recitation of a “structure” or “material” from a recitation of a “function.”<sup>66</sup> Specifically, Judge Rader admitted, “The difficulty of distinguishing acts from functions in step-plus-function claim elements, however, makes identifying step-plus-function claims inherently more problematic.”<sup>67</sup>

Nonetheless and despite the inherent difficulties, Judge Rader indicated that because the language of the statute recites means-plus-function and step-plus-function using a parallel format, the case law concerning means-plus-function should be applied to step-plus-function analysis.<sup>68</sup>

Accordingly, in a similar fashion as with means-plus-function, certain language will create a presumption that § 112, ¶ 6 applies; and conversely, the absence of such language will create the opposite presumption that § 112, ¶ 6 does not apply. While for means-plus-function, the special language is the word “means,” for step-plus-function the special language is “step for.”<sup>69</sup> Judge Rader makes it clear that it is only the precise phrase “step for” as opposed to just the word “step” or the phrase “step of” that invokes the presumption of the applicability of § 112, ¶ 6.<sup>70</sup> In fact, he makes it clear that the use of the phrase “step of” creates the presumption that § 112, ¶ 6 does not apply.<sup>71</sup>

The most significant problem arising from Judge Rader’s analysis is that at best a patentee can only voluntarily and unambiguously decide to either invoke a presumption that § 112, ¶ 6 applies or invoke a presumption that § 112, ¶ 6 does not apply to steps of a method claim. However, this is only a presumption. As a result, each and every step limitation must be carefully analyzed to see whether the presumption, one way or the other, has been rebutted. That is, even when the patentee uses the phrase “step for,” the courts and the public would need to determine if the limitation recites “sufficient acts for performing the specified

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36 summary affirmance decisions of the Federal Circuit on claim construction from the Supreme Court’s *Markman* decision (1996) through 2003. *Id.* at 239. That study found the rate of district court errors on means-plus-function terms upon appellate review was 39.3%. *Id.* at 242. However, when means-plus-function language appeals were removed from the study, the rate of district court error was only 33.4%. *Id.* at 243. Therefore, the study concluded district courts struggle more with means-plus-function claims than with regular claims. *Id.* The study further found that in 15.2% of means-plus-function term appeals, the district court wrongly evaluated whether means-plus-function language, and thus § 112, ¶ 6, even applied. *Id.* See also Christian A. Chu, *Empirical Analysis of the Federal Circuit’s Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1131–36 (2001).

<sup>65</sup> *Seal-Flex*, 172 F.3d at 848.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 848–49.

<sup>68</sup> *Id.* at 848.

<sup>69</sup> *Id.* at 848–49.

<sup>70</sup> *Id.* at 849. “[T]he phrase ‘step for’ in a method claim raises a presumption that § 112, ¶ 6 applies.” *Id.* However, “use of the word ‘step,’ by itself, does not invoke a presumption that § 112, ¶ 6 applies.” *Id.* “The phrase ‘steps of’ colloquially signals the introduction of specific acts, rather than functions, and should therefore not presumptively invoke application of § 112, ¶ 6.” *Id.*

<sup>71</sup> *Id.*

function”<sup>72</sup> in which case the presumption is rebutted and § 112, ¶ 6 does not apply. Conversely, even if the patentee does not use the phrase “step for,” the courts and the public would need to determine if the limitation contains acts for performing the function associated with the step.<sup>73</sup>

Judge Rader cautioned that when analyzing a series of presumed acts (steps in a claim not using the “step for” language), it is the function of each individual step that must be determined, not the function of the overall claim as may be recited in the preamble.<sup>74</sup>

A significant problem directly follows from the proposed test for determining whether the presumption that § 112, ¶ 6 does not apply has been rebutted. As stated above, the test for rebutting this presumption is whether an individual limitation “merely claim[s] the underlying function without recitation of acts for performing that function.”<sup>75</sup> The problem is for method claims employing the “steps of” transition followed by a series of presumed acts, each step reciting a presumed act will likely not have any recited “function” associated with it. Where a patentee has chosen to invoke the presumption that a recited step is itself an act, that step will often not contain additional words such as a recitation of a function. After all, unnecessarily reciting a function could serve to undesirably further limit the claim or at least provide additional fodder for an accused infringer to argue for noninfringement.

Rather, this test will degenerate into the basic question of whether the recited gerund is the function or an act having an unrecited function. Judge Rader himself recognized this inherent problem with his proposed procedure:

Unfortunately, method claim elements often recite phrases susceptible to interpretation as either a function or as an act for performing a function. Both acts and functions are often stated using verbs ending in “ing.” For instance, if the method claim element at issue in this case had merely recited the “step of” “spreading an adhesive tack coating,” it would not have been clear solely from this hypothetical claim language whether “spreading” was a function or an act. In such circumstances, claim interpretation requires careful analysis of the limitation in the context of the overall claim and the specification.<sup>76</sup>

Furthermore, Judge Rader advised “[i]f the language of the claim element does not expressly state its function, the function of that element may nonetheless be discernible from the context of the overall claim and the disclosure in the specification.”<sup>77</sup>

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<sup>72</sup> *Id.* (“Even when a claim element uses language that generally falls under the step-plus-function format, however, § 112, ¶ 6 still does not apply when the claim limitation itself recites sufficient acts for performing the specified function.”).

<sup>73</sup> *Id.* (“However, claim elements without express step-plus-function language may nevertheless fall within § 112, ¶ 6 if they merely claim the underlying function without recitation of acts for performing that function.”).

<sup>74</sup> *Id.* at 850.

<sup>75</sup> *Id.* at 849.

<sup>76</sup> *Id.*

<sup>77</sup> *Id.* at 850.

Apparently realizing that claim construction under his proposed approach would most often degenerate into a debate over whether a particular gerund is an act or a function, Judge Rader offered the following guidance:

In general terms, the “underlying function” of a method claim element corresponds to *what* that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. “Acts,” on the other hand, correspond to *how* the function is accomplished. Therefore, claim interpretation focuses on what the claim limitation accomplishes, i.e., it’s [sic] underlying function, in relation to what is accomplished by the other limitations and the claim as a whole. If a claim element recites only an underlying function without acts for performing it, then § 112, ¶ 6 applies even without express step-plus-function language.<sup>78</sup>

Given the above potential problems, it may be helpful to examine how Judge Rader utilized his “how” vs. “what” / “act” vs. “function” approach in the case at hand. As an initial matter, he noted that the claim used the phrase “steps of” in the preamble and hence invoked the presumption that the recited steps were acts as opposed to functions.<sup>79</sup> He next looked to see if the presumption was rebutted by attempting to determine “whether the claim element recites only the underlying function of the element itself as opposed to an act for performing it.”<sup>80</sup> As stated above, the limitation in dispute was “spreading an adhesive tack coating for adhering the mat to the foundation over the foundation surface.”<sup>81</sup> Judge Rader’s procedure requires the determination of the “function” of the “spreading” step.<sup>82</sup> Judge Rader stated the function of this limitation was explicitly recited in the limitation itself, namely, “adhering the mat to the foundation.”<sup>83</sup> Accordingly, Judge Rader found that this limitation was not a step-plus-limitation because the function of “adhering the mat to the foundation” was achieved by the act of “spreading.”<sup>84</sup>

Unfortunately, a closer review of the limitation reveals that the step of “spreading” does not correspond to the function of “adhering the mat to the foundation.” Rather, if anything, adhering the mat to the foundation would be the function of the adhesive tack coating. As is apparent from the claim, it is the coating that causes the subsequently applied layer(s) of particulate rubber forming the mat to be adhered to the foundation, not the step of spreading the coating on the ground. It is clear from the language of the claim that the spreading of the coating cannot serve the function of adhering the mat to the ground as the mat would not even exist at the time the spreading step is performed.<sup>85</sup>

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<sup>78</sup> *Id.* at 849–50.

<sup>79</sup> *Id.* at 850.

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

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

<sup>84</sup> *Id.*

<sup>85</sup> U.S. Patent No. 4,529,622 cols. 5–6 (filed Sept. 4, 1984) (See the language of the next step of claim 1, e.g., the next step is “spreading a first uniform layer of particulate rubber *over the tack coating*.”) (emphasis added).



Given that “adhering the mat to the foundation” is not the function of the step of “spreading,” Judge Rader’s procedure suggests one should use the *how/what* test to ascertain the function and the act associated with this limitation. However, the application of the *how/what* test is not unambiguous. For example, is the function of this limitation perhaps the unrecited function of distributing or applying the adhesive tack coating over the foundation while the step of “spreading” indicates *how* the coating is distributed over the foundation? That is, does the limitation serve to indicate that the coating must be spread as opposed to being applied in some other fashion? If so, then under Judge Rader’s analysis, the step of “spreading” is an act as it goes to how the function of applying the coating is achieved.

On the other hand, is the recited step of “spreading” actually the function? If so, the claim limitation does not explain “how” the coating is spread over the foundation. For example, the claim limitation does not specify whether the coating is spread with a brush or a roller or whether it is spread in a circular manner or in a back-and-forth manner. As a result, the step of “spreading” would be a step-plus-function limitation as the limitation does not recite or further limit *how* the coating is spread.

These questions are not addressed by Judge Rader and his proposed analytical approach does not seem to provide a clear answer. It is also interesting to note that the accused infringer actually applied the coating by spraying it on the foundation.<sup>86</sup> If the claim were to be held to be a step-plus-function, it would appear the accused infringer could potentially have had an argument that its act of spraying was not the same or equivalent to the acts described in the patent for “spreading” the coating on the foundation.

Judge Rader also set about to determine whether the phrase “adhesive tack coating [for adhering the mat to the foundation] was a means-plus-function limitation.”<sup>87</sup> He concluded that it was not a means-plus-function limitation because (1) it did not use the word “means” and (2) it contained “a sufficient disclosure of material for performing the claimed function to preclude application of § 112, ¶ 6.”<sup>88</sup> While his opinion did not specifically identify the function associated with “adhesive tack coating,” he doubtless found the corresponding function to be “adhering the mat to the foundation.” However, given that “adhering the mat to the foundation” is the corresponding function for the “adhesive tack coating” under a means-plus-function analysis, it becomes even clearer that that same function could not also be the corresponding function for the “spreading” limitation under a step-plus-function analysis.

#### 4. Conclusion Regarding the Proposed Approach

While Judge Rader maintains that his proposed procedure provides a “straightforward analysis for identifying a step-plus-function claim” similar to the “straightforward analysis” for means-plus-function claims,<sup>89</sup> it seems doubtful to the

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<sup>86</sup> *Seal-Flex*, 172 F.3d at 840.

<sup>87</sup> *Id.* at 851.

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

<sup>89</sup> *Id.* at 850.

author that the analysis will be perceived by litigants, the courts, and the public as being straightforward.

As can be seen from the above, in most cases, the proposed approach will require courts to engage in a “careful analysis of the limitation in the context of the overall claim and the specification.”<sup>90</sup> Moreover, the public notice function of the claims will likely be impeded. For the public to know the boundaries of what is being claimed, it must predict the results a court will reach after such careful analysis. Given that such a thorough and complicated analysis must be undertaken, it would seem all but certain that different courts could arrive at different conclusions; and hence, method claims could cease to serve their fundamental purpose of informing the public as to the scope of the claimed invention.

#### D. *Micro Chemical, Inc. v. Great Plains Chemical Co.*

Six months after rendering his *Seal-Flex* concurring opinion, Judge Rader wrote the decision in *Micro Chemical, Inc. v. Great Plains Chemical Co.*<sup>91</sup> on October 6, 1999.<sup>92</sup> Judges Plager and Bryson were also on the panel.<sup>93</sup>

In granting a motion for summary judgment of non-infringement, the district court below held certain claim limitations were not step-plus-function limitations but nonetheless the accused method fell outside the scope of the claim limitations.<sup>94</sup> In reversing the finding on non-infringement of the disputed method claims, the Federal Circuit stated that the accused method would infringe the method claims regardless of whether the disputed limitations were found to be step-plus-function limitations or not.<sup>95</sup> As a result, the Federal Circuit declined to determine whether the disputed limitations were step-plus-function limitations or not.<sup>96</sup>

Rather, it first assumed the disputed limitations were step-plus-function limitations and discussed why the accused method met the disputed limitations as construed under § 112, ¶ 6. The court then assumed the disputed limitations were not step-plus-function limitations and discussed why the limitations were nonetheless present in the accused method.<sup>97</sup>

The method claims at issue were claims 63, 93, and 94 of U.S. Patent No. 4,733,971.<sup>98</sup> Claims 63 and 93 are reproduced below with the disputed claim limitations emphasized.

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<sup>90</sup> *Id.* at 849.

<sup>91</sup> 194 F.3d 1250 (Fed. Cir. 1999).

<sup>92</sup> *Id.* at 1250.

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

<sup>94</sup> *Micro Chem., Inc. v. Great Plains Chem. Co.*, No. 88-Z-499, 1997 US Dist. LEXIS 23653, at \*\*10–16 (D. Co. Nov. 19, 1997), *aff'd in part, rev'd in part*, 194 F.3d 1250 (Fed. Cir. 1999) (reversing district court's finding of non-infringement as to the three method claims).

<sup>95</sup> *Micro Chem.*, 194 F.3d at 1259 (“[B]ecause this court concludes that the method claims would be infringed whether or not interpreted under § 112, ¶ 6, this court does not address whether the district court was correct in finding the method claims not in step-plus-function form.”).

<sup>96</sup> *Id.*

<sup>97</sup> *Id.* at 1259–60.

<sup>98</sup> *Id.* at 1254.

63. A method of dispensing and delivering microingredient feed additives into a livestock feed ration shortly before delivering the feed ration to the livestock for consumption, comprising the steps:

storing separately multiple said additives in concentrate form;

*dispensing predetermined weights of selected said additive concentrates into a liquid carrier* with no substantial intermixing of the additive concentrates before they enter the liquid carrier;

intermixing the additive concentrates in the liquid carrier to dilute, disperse, and suspend them and form a liquid carrier-additive slurry;

directing the slurry to a receiving station while maintaining the suspension and dispersion of the additives until delivered into a feed ration; and

determining the predetermined weights of selected additives by the step of measuring the predetermined weights while isolating the measuring means from influences that would affect the measuring function so that accurate weight determinations are obtained.

....

93. A method of dispensing and delivering formulations of microingredient feed additives into a livestock feed ration at a feedlot shortly before delivering the feed ration to the livestock for consumption, comprising the steps:

storing separately multiple said additives in concentrate form;

*weighing predetermined amounts of selected said additives*, with no substantial intermixing of the selected additives during the weighing process;

discharging the weighed amounts of the selected additives into a mixing vessel;

introducing a liquid carrier into the mixing vessel;

intermixing the liquid carrier and weighed amounts of selected additives in the mixing vessel to form a slurry within the mixing vessel; and

conveying the slurry to a receiving station while maintaining the weighed amounts of additive concentrates in suspension and dispersion until the slurry is delivered into a feed ration.<sup>99</sup>

The Federal Circuit stated the specification disclosed three acts for performing the function of “dispensing predetermined weights of microingredients without substantial intermixing prior to entry into the liquid” including a prior art dump method employed by the accused infringer.<sup>100</sup> Accordingly, the limitations would be literally met if the limitations were step-plus-function limitations.<sup>101</sup> Further, the court found that if the limitations were not step-plus-function limitations, the accused dump method satisfied the ordinarily understood meaning of the disputed limitations.<sup>102</sup>

*E. Generation II Orthotics, Inc. v. Medical Technologies, Inc.*

*Generation II Orthotics, Inc. v. Medical Technologies, Inc.*<sup>103</sup> was decided on August 15, 2001 by a panel consisting of Judges Newman, Dyk, and Linn (opinion written by Judge Linn). Exemplary claims of U.S. Pat. No. 5,302,169 including one apparatus claim and one method claim are reproduced below with the disputed “joint means” and “joint” limitations emphasized.

1. In an orthopaedic brace comprising:

a pair of arms to be secured to a wearer's body, a pivotable joint between said arms to allow pivoting of the knee while supporting the knee, the improvement comprising:

***joint means in the brace for allowing controlled medial and lateral inclination of each rigid arm relative to the pivotable joint.***

....

16. A method of bracing a knee of a patient following high tibial osteotomy comprising:

locating a brace about the knee, said brace having a pair of arms to contact the leg of the patient and a pivotable joint between said arms to allow pivoting of the knee while supporting the knee, ***a joint in the brace to allow controlled medial and lateral inclination of each arm relative to a pivotable joint;*** and

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<sup>99</sup> U.S. Patent No. 4,733,971 cols. 29, 35–36 (filed Feb. 26, 1986) (emphasis added).

<sup>100</sup> *Micro Chem.*, 194 F.3d at 1259–60.

<sup>101</sup> *Id.* at 1260.

<sup>102</sup> *Id.*

<sup>103</sup> 263 F.3d 1356 (Fed. Cir. 2001).

adjusting the inclination to provide the required bracing at the required inclination.<sup>104</sup>

The “joint means” limitation was undisputed to be a means-plus-function limitation. With respect to the method claim, the Federal Circuit stated:

The district court determined that § 112, paragraph 6, applies to method claim 16. . . . In making this determination, the court relied solely on the fact that the limitations recited in these method claims were similar to the means-plus-function limitations recited in claim 1 of the 169 patent. . . .

We hold that the district court erred in its determination that paragraph 6 of § 112 applied to claim 16 of the 169 patent. . . . The district court's decision and reasoning directly contradict this court's previous holdings regarding the applicability of § 112, paragraph 6, to method claims. The mere fact that a method claim is drafted with language parallel to an apparatus claim with means-plus-function language does not mean that the method claim should be subject to an analysis under § 112, paragraph 6. Rather, each limitation of each claim must be independently reviewed to determine if it is subject to the requirements of § 112, paragraph 6.<sup>105</sup>

In analyzing the method claim, the court was careful to separate step-plus-function analysis that it applied to the recited step from means-plus-function analysis that it applied to the structural term “joint,” which appeared in the method limitation. In this regard, the court stated:

[C]laim 16 . . . recite[s] “locating a brace about the knee” and “adjusting the inclination” of the brace arms. In addition, [this claim] include[s] the phrase “a joint in the brace to allow controlled medial and lateral inclination of each arm relative to a pivotable joint.” Because claim 16 [does] not use the words “means for” with regard to the structural “joint” limitation, and [does] not use the words “step for” with regard to the “locating” and “adjusting” steps, there is a presumption that these limitations are not subject to section 112, paragraph 6. Furthermore, these limitations contain no language that would overcome the presumption. Consequently, the district court erred by construing claim 16 . . . to have the same scope as claim 1 when, instead, it should have construed each claim independently.<sup>106</sup>

Noteworthy, in reversing the finding that § 112, ¶ 6 applied, the Federal Circuit rejected the assertion “that the district court was correct in stating that it would ‘undermine the compromise struck by § 112, paragraph 6, if a patentee could avoid

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<sup>104</sup> U.S. Patent No. 5,302,169 cols. 6, 8 (filed Jan. 4, 1993) (emphasis added).

<sup>105</sup> *Generation II Orthotics*, 263 F.3d at 1368 (citations omitted).

<sup>106</sup> *Id.* (citations omitted).

the strictures of that section by simply embedding a purely functional description of a patented device in a method claim.”<sup>107</sup>

*F. Epcon Gas Systems, Inc. v. Bauer Compressors, Inc.*

*Epcon Gas Systems, Inc. v. Bauer Compressors, Inc.*<sup>108</sup> was decided on February 1, 2002 with Judge Linn authoring the opinion for a panel also comprising Judges Mayer and Clevenger.<sup>109</sup> The method claim that was in dispute was claim 2 of U.S. Patent No. 5,118,455, which is reproduced below with the disputed limitation emphasized.

2. A method of providing gas assistance to a resin injection molding process of the type in which hot resin is injected into a mold, gas is injected into the mold to displace a portion of the resin in the mold, the resin cools, the gas is vented and the mold is opened to remove the molded part, a supply of stored [g]as is provided, the gas is injected into the mold to displace the resin in the mold cavity at a pressure that is at all times during the gas injection cycle substantially below the pressure of the stored gas supply, the improvement wherein, following the initial injection of the gas into the mold and ***prior to the venting of the gas from the mold, the gas pressure within the mold is selectively increased, decreased, or held substantially constant depending upon the particular requirements of the molding process.***<sup>110</sup>

The patent also included a similar apparatus claim (claim 16) that recited “control means” to selectively increase, decrease, or maintain the gas pressure following the initial injection of the gas into the mold and prior to the venting of the gas from the mold.<sup>111</sup> The parties agreed that the “control means” in the corresponding apparatus claim was a means-plus-function limitation.<sup>112</sup>

The district court applied § 112, ¶ 6 to the disputed claim language because it thought that claim 2 was drafted in step-plus-function form.<sup>113</sup>

In reversing the district court’s finding that the disputed limitation was a step-plus-function limitation, the Federal Circuit stated the “district court erred in its finding that the limitations of claim 2 must be interpreted according to § 112, paragraph 6 consistently with [the control means recited in apparatus] claim 16, without independently evaluating application of § 112, paragraph 6 to claim 2.”<sup>114</sup> In this regard and citing *O.I. Corp.*, the court stated:

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<sup>107</sup> *Id.* at 1368.

<sup>108</sup> 279 F.3d 1022 (Fed. Cir. 2002).

<sup>109</sup> *Id.* at 1022.

<sup>110</sup> U.S. Patent No. 5,118,455 col. 17 (filed Feb. 15, 1991) (emphasis added).

<sup>111</sup> *Epcon Gas*, 279 F.3d at 1022.

<sup>112</sup> *Id.* at 1032.

<sup>113</sup> *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 134 F. Supp. 2d 838, 844 (E.D. Mich. 2000), *aff’d in part, rev’d in part*, 279 F.3d 1022 (reversing the district court’s finding that the disputed limitation was a step-plus-function limitation).

<sup>114</sup> *Epcon Gas*, 279 F.3d at 1028.

[M]ethod claims that “parallel,” or have limitations similar to, apparatus claims admittedly subject to § 112, paragraph 6 are not necessarily subject to the requirements of § 112, paragraph 6. “Each claim must be independently reviewed in order to determine if it is subject to the requirements of § 112, paragraph 6.”<sup>115</sup>

In this case, the Federal Circuit stated:

An independent evaluation of claim 2 shows that it is not subject to § 112, paragraph 6. The claim includes no words indicating “step plus function” form, such as “step for.” The claim recites a series of steps without the recital of function. As noted in *O.I. Corp.*, a preamble statement of purpose does not necessarily supply a function for “step plus function” form. Claim 2 is a garden variety process claim. The district court erred in analyzing claim 2 according to § 112, paragraph 6.<sup>116</sup>

As indicated in the above passage, the Federal Circuit found the claim recited a series of steps without the recital of function, and hence, did not invoke § 112, ¶ 6.<sup>117</sup> While the court did cite with approval the portion of Judge Rader’s *Seal-Flex* concurring opinion concerning the phrase “step for” indicating function, it did not rely on the other portion of this concurring opinion nor did it engage in the analytical procedure proposed therein such as attempting to identify unrecited functions for steps or delving into a *how/what* analysis.

The accused method employed one and the same valve for selectively reducing gas pressure and for the final venting of the gas.<sup>118</sup> The accused infringer had maintained that because the disputed limitation was a step-plus-function limitation and the specification only disclosed the use of separate valves for selectively reducing gas pressure versus final venting of the gas, the accused method was outside the scope of the claim.<sup>119</sup> However, because the Federal Circuit reversed the finding that the limitation invoked § 112, ¶ 6, the court rejected the attempt to limit the claim limitation to only the two-valved system disclosed in the specification.<sup>120</sup> Instead, the court pointed out that the “method of claim 2 does not mention structure by which the ‘venting’ is to be performed,” and thus it was improper to incorporate such structural limitations into the claim.<sup>121</sup>

#### G. Masco Corp. v. United States

*Masco Corp. v. United States*<sup>122</sup> was decided on August 28, 2002, six months after *Epcon Gas*, by a panel comprising Judges Newman, Clevenger, and Linn.

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<sup>115</sup> *Id.* (citing *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997)).

<sup>116</sup> *Id.* (citations omitted).

<sup>117</sup> *Id.*

<sup>118</sup> *Id.* at 1031.

<sup>119</sup> *Id.*

<sup>120</sup> *Id.*

<sup>121</sup> *Id.* at 1032.

<sup>122</sup> 303 F.3d 1316 (Fed. Cir. 2002).

Judge Linn again authored the opinion.<sup>123</sup> An exemplary method claim in dispute was claim 1 of U.S. Patent No. 5,540,068, which is reproduced below with the language alleged by the government to be to step-plus-function limitation emphasized.

1. A method of controlling an electronic lock including a dial, a rotatable cam wheel operably connected to the dial and defining a surface, a locking mechanism movable between a locked position and an unlocked position, and a movable lever operably connected to the locking mechanism and having a protrusion adapted to engage the cam wheel, the method comprising the steps of:

***holding the lever*** in a position where the protrusion cannot contact the surface of the cam wheel and in such a manner that the lever and the dial are operably disconnected and the lever will not move in response to rotation of the dial;

electronically determining whether an input combination corresponds to a predetermined combination;

***operably connecting*** the lever and the dial, while maintaining the lever in a position where the protrusion cannot contact the surface of the cam wheel in response to a determination that the predetermined combination has been input; and

***transmitting a force*** applied to the dial to the lever after the lever and the dial have been operably connected to drive the lever to a position where the protrusion can contact the surface of the cam wheel in such a manner that the lever will be pulled by the cam wheel during rotation of the cam wheel.<sup>124</sup>

Below, the U.S. Court of Federal Claims found the following limitations not to be step-plus-function limitations:<sup>125</sup>

- 1) holding the lever in a position where the protrusion cannot contact the surface of the cam wheel.
- 2) operably connecting the lever and the dial.

However, the Court of Federal Claims did find the limitation of “transmitting a force applied to the dial to the lever” to be a step-plus-function limitation.<sup>126</sup> This finding was reversed by the Federal Circuit.<sup>127</sup>

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<sup>123</sup> *Id.* at 1316–18.

<sup>124</sup> U.S. Patent No. 5,540,068 col. 8 (filed May 2, 1994) (emphasis added).

<sup>125</sup> *Masco Corp. v. United States*, 47 Fed. Cl. 449, 454–55 (Ct. Cl. 2000), *aff'd in part, rev'd in part*, 303 F.3d 1316 (Fed. Cir. 2002).



### 1. *U.S. Court of Federal Claims Opinion*

In its consideration of the step-plus-function issues below, the Federal Claims Court cited *O.I. Corp.* for the applicable step-plus-function law, noting that “[t]he most important part of [*O.I. Corp.*] is ‘with respect to steps, [section 112, paragraph 6] is implicated only when steps plus function without acts are present.’”<sup>128</sup> The Federal Claims Court went on to state “[t]hus, in deciding whether a particular limitation is a ‘step plus function’ limitation, this Court will examine the patent to see whether any act is present. If an act is present, then the limitation is not a step plus function limitation.”<sup>129</sup>

The Federal Claims Court then looked to Judge Rader’s concurring opinion in *Seal-Flex* for the test for distinguishing acts and functions.<sup>130</sup> Even though the Federal Claims Court recognized that Judge Rader’s opinion was his own and not binding, the court still followed it because it felt the opinion was “well-reasoned and persuasive.”<sup>131</sup>

Using Rader’s test, the Federal Claims Court held that “holding” is an act.<sup>132</sup> In reaching this conclusion the Federal Claims Court stated:

When compared to how levers in prior technology acted [namely, they moved], “holding” is doing something.

. . . .

. . . Here, the act (or how the function is accomplished) is the holding still without movement.

A person with ordinary skill in the art would understand that “holding” the lever means that the lever does not move. Accordingly, since “holding” is an act, and since a limitation with an act cannot be a step plus function limitation, this limitation is not a step plus function limitation.<sup>133</sup>

The Federal Claims Court also applied Judge Rader’s proposed presumption that § 112, ¶ 6 did not apply given that the phrase “steps of” was used in the claim.<sup>134</sup> Here, the Federal Claims Court stated the “[d]efendant has not presented a persuasive argument to deviate from this presumption.”<sup>135</sup>

The Federal Claims Court also applied the Rader test to hold that “connecting” is an act.<sup>136</sup> In doing so, the court noted that after the combination has been entered

<sup>126</sup> *Id.* at 455.

<sup>127</sup> *Masco Corp.*, 303 F.3d at 1327.

<sup>128</sup> *Masco Corp.*, 47 Fed. Cl. at 453.

<sup>129</sup> *Id.*

<sup>130</sup> *Id.* (citing *Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 172 F.3d 836 (Fed. Cir. 1999) (Rader, J., concurring)).

<sup>131</sup> *Id.* at 454.

<sup>132</sup> *Id.*

<sup>133</sup> *Id.*

<sup>134</sup> *Id.*

<sup>135</sup> *Id.*

<sup>136</sup> *Id.* at 455.

“[a] person skilled in the art would understand that the machinery in the lock changes. The lever was separate from the dial. Then, the lever is linked to the dial. This change is an act, encapsulated in the phrase ‘operably connecting.’”<sup>137</sup>

The Federal Claims Court then commented about broad and narrow acts:

Some words for “acts” are broad terms, such as “traveling.” Other words for “acts” are more narrow, such as “hiking” or “biking.” Simply because “traveling” includes the more specific concepts “hiking” and “biking,” does not mean that “traveling” is not an act. Likewise, “connecting” remains an act, even though the connection can be achieved using different methods.<sup>138</sup>

The third limitation that the court construed was “transmitting.” The court applied the same analysis, but concluded that “transmitting” was not an act.<sup>139</sup> Applying the Rader test, the court determined:

The word “transmitting” without more does not explain *how* the force is transmitted. “Transmitting” makes sense only when considered in context of *what* the function accomplishes, which is “to drive the lever . . . during rotation of the cam wheel.” This limitation sets forth a function, but does not set forth an act.<sup>140</sup>

## 2. Federal Circuit Opinion

The Federal Circuit reversed the lower court’s ruling that “transmitting” was a step-plus-function limitation, holding that the “transmitting a force” limitation of claim 1 was indeed an act, not a function, and hence not a step-plus-function limitation.<sup>141</sup> In doing so, the Federal Circuit clarified the distinction between how the two possible presumptions should be handled, namely, 1) the presumption that § 112, ¶ 6 does apply when the draftsman has chosen to use the phrase “step for” and 2) the presumption that § 112, ¶ 6 does not apply when the draftsman has chosen not to use the phrase “step for.”<sup>142</sup> With respect to the first presumption that § 112, ¶ 6 applies, the Federal Circuit stated that this presumption stands “only when steps plus function *without acts* are present.”<sup>143</sup> However, when the second presumption applies, namely, that a limitation is not a step-plus-function limitation, the presumption can be rebutted only when “the limitation *contains nothing that can be construed as an act.*”<sup>144</sup> More specifically, the Federal Circuit explained:

Where the claim drafter has not signaled his intent to invoke § 112, paragraph 6 by using the “step[s] for” language, we are unwilling to resort

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<sup>137</sup> *Id.*

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

<sup>140</sup> *Id.* (emphasis added).

<sup>141</sup> *Masco Corp. v. United States*, 303 F.3d 1316, 1328 (Fed. Cir. 2002).

<sup>142</sup> *Id.* at 1326–27.

<sup>143</sup> *Id.* at 1326 (quoting *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1582 (Fed. Cir. 1997)).

<sup>144</sup> *Id.* at 1327 (emphasis added).

to that provision to constrain the scope of coverage of a claim limitation without a showing that the limitation contains nothing that can be construed as an act. Method claims are commonly drafted, as in this case, by reciting the phrase “steps of” followed by a list of actions comprising the method claimed. An application of § 112, paragraph 6 in the present circumstances would render the scope of coverage of these method claims uncertain and disrupt patentees’ settled expectations regarding the scope of their claims. “[C]ourts must be cautious before adopting changes that disrupt the settled expectations of the inventing community.” We thus hold that where a method claim does not contain the term “step[s] for,” a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act.<sup>145</sup>

First, the Federal Circuit noted that “the Court of Federal Claims properly examined the claim limitations to see whether any act was present, stating that ‘[i]f an act is present, then the limitation is not a step plus function limitation.’”<sup>146</sup>

The Federal Circuit then applied Judge Rader’s *Seal-Flex what/how* test to find that “transmitting” can be construed as an act.<sup>147</sup> In this regard, the court considered dictionary definitions of “transmission” and “transmit” and concluded:

The underlying function of the “transmitting a force” limitations, or in Judge Rader’s formulation, what those limitations ultimately accomplish in relation to what the other limitations and each claim as a whole accomplish, is to drive the lever into the cam. . . . “Transmitting a force” describes how the lever is driven into the cam. In other words, “transmitting” in the sense of causing a force to be conveyed through a medium by mechanical parts is an act, since it describes how the function of the “transmitting a force” limitation is accomplished. Accordingly, we reverse the holding of the Court of Federal Claims and hold that the “transmitting a force” limitation . . . is not a step-plus-function limitation.<sup>148</sup>

#### H. *Utica Enterprises, Inc. v. Federal Broach & Machine Co.*

Judge Lourie authored the *Utica Enterprises, Inc. v. Federal Broach & Machine Co.*<sup>149</sup> opinion on August 19, 2004 and was joined by Judge Linn. Interestingly, Chief Judge Mayer dissented without opinion.<sup>150</sup> The claims at issue were claims 1 and 3 of U.S. Patent No. 6,256,857.<sup>151</sup> Condensed versions of these claims are reproduced below with language addressed by the Federal Circuit emphasized.

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<sup>145</sup> *Id.* (citations omitted).

<sup>146</sup> *Id.*

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* at 1327–28.

<sup>149</sup> *Utica Enters., Inc. v. Fed. Broach & Mach. Co.*, 109 F. App’x 403, 403–05 (Fed. Cir. 2004).

<sup>150</sup> *Id.* at 411.

<sup>151</sup> *Id.* at 405–07.

1. A method of retaining a broach cutting tool member in a broach tool holder, said broach tool holder comprising:

... [a] first planar abutment surface and [a] second planar abutment surface forming a dihedral right angle, said first and second planar abutment surfaces further forming a right angle with said top surface;

said broach cutting tool member comprising ... two planar abutment surfaces adapted to be complementary, respectively, to said first planar and second planar abutment surfaces, disposed on said broach tool holder ...;

said method *comprising the steps of* positioning said two planar abutment surfaces of said broach cutting tool member contiguous said first planar and said second planar abutment surfaces, respectively, of said broach tool holder ... whereby when said broach cutting tool member is positioned in said broach tool holder a predetermined accurate work position is established for said broach cutting tool member; and

*locking said broach cutting tool member in said predetermined accurate work position, by imposing a locking force on* said at least a portion of *said third planar abutment surface* of said broach cutting tool member, said locking force having a force component directed towards said two planar abutment surfaces of said broach cutting tool member and a force component directed downward from said top surface towards said intermediate surface of said broach tool holder *to securely hold said broach cutting tool member in said broach tool holder.*

....

3. A method of retaining a broach cutting tool member in a broach tool holder, one of said broach cutting tool member and said broach tool holder having a first top surface and a second lower surface spaced from said first top surface, said method *comprising the steps of*

forming a first planar surface on one of said broach cutting tool member and said broach tool holder;

forming a second planar surface ...

....

positioning said first and second planar surfaces on said one of said broach cutting tool member and said broach tool holder contiguous to said respective complementary first and second planar surfaces on said other of said broach cutting tool member and said broach tool holder whereby ... a predetermined accurate work position is established; and

***locking said one of said broach cutting tool member and said broach tool holder in said predetermined accurate work position by imposing a locking force on said at least a portion of said third planar surface*** whereby said locking force generates a force component in a direction downward from said first top surface towards said second lower surface and a force component towards said first and second planar surfaces of one of said broach cutting tool member and said broach tool holder.<sup>152</sup>

In the proceedings below, the district court, *sua sponte*, found two similar limitations to be step-plus-function limitations even though neither party argued for the application of § 112, ¶ 6.<sup>153</sup> The district court found that § 112, ¶ 6 is presumed to apply because the claim used the word “steps” with functions.<sup>154</sup> The district court then went on to state that the presumption could be “rebutted if the claim itself recites sufficient structures or materials to perform the stated function.”<sup>155</sup> The court went on to explain that because “[c]laim 1 does not recite definite structures that . . . generate the locking force, the presumption that § 112, ¶ 6, applies is unrebutted.”<sup>156</sup> The Federal Circuit reversed the finding that the limitations invoked § 112, ¶ 6.<sup>157</sup>

On appeal, the Federal Circuit agreed with both parties and held that “the district court erred in interpreting the ‘locking’ limitations under § 112, ¶ 6.”<sup>158</sup> The court cleared up the confusing lower court’s opinion by explaining that the disputed “limitations use the phrase ‘step of’—rather than the phrase ‘step for’—and therefore do not invoke the presumption that they are in step-plus-function format.”<sup>159</sup> In this regard, the Federal Circuit reiterated “[i]n the context of method claims, use of the term ‘step for’ signals the patentee’s intent to invoke § 112, ¶ 6 and thus gives rise to the presumption that the ‘step for’ limitations are in step-plus-function format.”<sup>160</sup>

Of particular interest, the Federal Circuit stated “[w]ithout ‘step for’ language, however, a method claim is subject to the strictures of § 112, ¶ 6 *only if* it recites steps for performing *a specified function* but does not recite any act in support of that function.”<sup>161</sup> The court explained that the “locking” limitations at issue “are not step-plus-function limitations because they do not contain steps plus functions without acts.”<sup>162</sup>

With respect to the “locking” step of claim 1, the court found that the function of this step was recited in the claim, namely, “securing the cutting tool in the tool holder.”<sup>163</sup> Furthermore, the claim also “explains how the tool is secured in the

<sup>152</sup> U.S. Patent No. 6,256,857 cols. 7–8 (filed Mar. 8, 1999) (emphasis added).

<sup>153</sup> *Utica Enters., Inc. v. Fed. Broach & Mach. Co.*, 258 F. Supp. 2d 706, 715 (E.D. Mich. 2003), *vacated*, 109 F. App’x 403.

<sup>154</sup> *Id.*

<sup>155</sup> *Id.*

<sup>156</sup> *Id.* at 716.

<sup>157</sup> *Utica Enters., Inc.*, 109 F. App’x at 409.

<sup>158</sup> *Id.*

<sup>159</sup> *Id.* (citing *Masco Corp. v. United States*, 303 F.3d 1316, 1327 (Fed. Cir. 2002)).

<sup>160</sup> *Id.* (citing *Masco Corp.*, 303 F.3d at 1326).

<sup>161</sup> *Id.* (citing *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997)) (emphasis added).

<sup>162</sup> *Id.*

<sup>163</sup> *Id.* at 409–10.

holder—by imposing a locking force on the tool’s third planar abutment surface.”<sup>164</sup> As a result, the Federal Circuit found that the “locking” limitation of claim 1 “thus contains an act in support of its specified function and, consequently, does not implicate § 112, ¶ 6.”<sup>165</sup>

Of particular interest, the Court went on to state that the “locking” limitation of claim 3 was “even farther removed from being in step-plus-function format: it does not expressly specify the function that the “locking” step is to perform, and it recites the act of imposing a locking force on a portion of the tool’s third planar surface.”<sup>166</sup> In this regard, while claim 1 recited the “function” of the “locking” limitation in the claim, namely, “to securely hold said broach cutting tool member in said broach tool holder,” this language was not present in claim 3. As explained by the court above, where a limitation is presumed not to invoke § 112, ¶ 6, that presumption can “*only* [be rebutted] if it recites steps for performing *a specified function* but does not recite any act in support of that function.”<sup>167</sup> This language comes directly from the statute which states “[a]n element in a claim for a combination may be expressed as a . . . step for performing *a specified function* without the recital of . . . acts in support thereof.”<sup>168</sup> Given that claim 3 did not recite “a specified function” for the step of “locking,” the absence from the claim limitation of a specified function as required by the statute caused the Federal Circuit to conclude that the “locking” limitation of claim 3 was even farther removed from invoking § 112, ¶ 6.<sup>169</sup>

#### I. Cardiac Pacemakers, Inc. v. Saint Jude Medical, Inc.

Two weeks later on August 31, 2004, Judge Newman wrote the opinion in *Cardiac Pacemakers, Inc. v. Saint Jude Medical, Inc.*<sup>170</sup> for the panel also comprising Judges Friedman and Rader.<sup>171</sup> In the proceedings below, the district court considered whether two limitations of claim 1 of U.S. Patent No. 4,407,288 were step-plus-function limitations.<sup>172</sup> This claim is reproduced below with the two limitations emphasized:

1. A method of heart stimulation using an implantable heart stimulator capable of detecting a plurality of arrhythmias and capable of being programmed to undergo a single or multi-mode operation to treat a detected arrhythmia, corresponding to said mode of operation the method comprising the steps of:

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<sup>164</sup> *Id.* at 410.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

<sup>167</sup> *Id.* at 409 (citing *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997)) (emphasis added).

<sup>168</sup> *Id.* (emphasis added); 35 U.S.C. § 112, ¶ 6 (2006).

<sup>169</sup> *Utica Enters.*, 109 F. App’x at 410.

<sup>170</sup> 381 F.3d 1371 (Fed. Cir. 2004).

<sup>171</sup> *Id.* at 1371–73.

<sup>172</sup> *Cardiac Pacemakers, Inc. v. Saint Jude Med., Inc.*, No. IP 96-1718-C-H/G, 2001 WL 912767, at \*8–14 (S.D. Ind. June 14, 2001), *rev’d*, 381 F.3d 1371.

(a) ***determining a condition of the heart from among a plurality of conditions of the heart***

(b) ***selecting at least one mode of operation of the implantable heart stimulator*** which operation includes a unique sequence of events corresponding to said determined condition; and

(c) executing said at least one mode of operation of said implantable heart stimulator thereby to treat said determined heart condition.<sup>173</sup>

The district court found that the “selecting” step (b) did not invoke § 112, ¶ 6<sup>174</sup> but that the “determining” step (a) did.<sup>175</sup> With respect to the “selecting” step (b), the district court explained that this limitation was not a step-plus-function limitation because “[t]he ‘selecting’ step, as defined by the court, is a sufficiently discrete action in the claimed method.”<sup>176</sup>

With respect to the “determining step,” the district court stated:

The claim element uses extremely broad language. A simple question arises: If the step of “determining a condition of the heart” is not limited by the disclosures, how is it limited at all? CPI asserts in its brief: “The step of ‘determining a condition of the heart’ carries no limitations in the claim language as to the manner or way in which the condition is detected, and none can be properly read into the claim language.” Pl. Br. at 22. However, allowing CPI to claim all possible methods of detecting heart arrhythmia sweeps too broadly. The court is mindful that not all claims using gerunds should be construed as functions. Nonetheless, comparing the “determining step” at issue here to the claim elements that avoided § 112 ¶ 6 in *O.I. Corp. v. Tekmar Co.* and *Serrano v. Telular Corp.*, the court finds that CPI needed to remove at least one level of abstraction from its claim. For example, if the step were phrased in terms of “determining a condition of the heart by analyzing the output signals generated by heart status detection circuitry to distinguish among various conditions of the heart,” the element would come much closer to stating *how* the function of determining a condition of the heart is performed. Although patentees may wish to state claims as broadly as possible, they run the danger of reaching the boundaries established by § 112 ¶ 6. “Determining a condition of the heart” crosses the line.<sup>177</sup>

On appeal, the Federal Circuit “conclude[d] that the district court erred in applying § 112 ¶ 6” to the “determining” step.<sup>178</sup> In doing so, the Federal Circuit rejected the district court’s rationale that the broad language of the claimed step

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<sup>173</sup> U.S. Patent No. 4,407,288 col. 21 (filed Mar. 16, 1981) (emphasis added); *Cardiac Pacemakers*, 381 F.3d at 1375.

<sup>174</sup> *Cardiac Pacemakers*, 2001 WL 912767, at \*8.

<sup>175</sup> *Cardiac Pacemakers, Inc. v. Saint Jude Med., Inc.*, No. IP96-1718-C-H/G, 2000 WL 1765358, at \*24, \*34 (S.D. Ind. Nov. 29, 2000), *aff’d in part, rev’d in part on other grounds*, 381 F.3d 1371.

<sup>176</sup> *Cardiac Pacemakers*, 2001 WL 912767, at \*8.

<sup>177</sup> *Cardiac Pacemakers*, 2000 WL 1765358, at \*34.

<sup>178</sup> *Cardiac Pacemakers*, 381 F.3d at 1382.

justified the invocation of § 112, ¶ 6.<sup>179</sup> On appeal the patentee maintained that “clause (a) simply recites a step that is part of the claimed method.”<sup>180</sup> The court agreed and stated “that ‘claiming a step by itself, or even a series of steps, does not implicate § 112 ¶ 6,’ as explained in *O.I. Corp. v. Tekmar Co.*”<sup>181</sup> The Federal Circuit then remanded the case to the district court to construe this limitation outside the confines of § 112, ¶ 6.<sup>182</sup> The Federal Circuit also noted:

Method claims necessarily recite the steps of the method, and the preamble words that “the method comprises the steps of” do not automatically convert each ensuing step into the form of § 112 ¶ 6. Nor does the preamble usage “steps of” create a presumption that each ensuing step is in step-plus-function form; to the contrary, the absence of the signal “step for” creates the contrary presumption.<sup>183</sup>

#### VI. IS THERE ANYTHING THAT A CLAIM DRAFTER CAN DO TO AVOID STEP-PLUS-FUNCTION?

The ability of claim drafters to cleanly avoid having § 112, ¶ 6 apply to the steps of method claims will depend on whether the analytical approach suggested by Judge Rader in his *Seal-Flex* concurring opinion continues to gain ground or whether the Federal Circuit directly or indirectly continues to use other ways to avoid § 112, ¶ 6. Either way, here are some suggestions for avoiding § 112, ¶ 6.

1. **Do not use the phrase “step for.”** Without doubt, this is the most important factor. By avoiding “step for,” method claim limitations are at least presumed *not* to invoke § 112, ¶ 6.<sup>184</sup> Under at least some Federal Circuit decisions, perhaps this factor will be definitive.

2. **Consider calling limitations “acts” instead of “steps.”** For example, instead of reciting “comprising the steps of” in the preamble recite “comprising the acts of.” Under some approaches, a court may attempt to determine whether a recited gerund is an act or a function.<sup>185</sup> The Federal Circuit has recognized that distinguishing an act from a function can be very difficult.<sup>186</sup> In reality, it may just be a question of semantics. Referring to gerunds in method claims as “acts” may allow a court to more easily find them to be acts. The limitations should also be referred to as acts in the specification.

Additionally, in *O.I. Corp.* and other decisions, the Federal Circuit has indicated that use of § 112, ¶ 6 is a permissive option which a claim drafter may choose to invoke or not.<sup>187</sup> Using the word “acts” instead of “steps” may also help avoid

<sup>179</sup> *Id.* at 1381.

<sup>180</sup> *Id.*

<sup>181</sup> *Id.*

<sup>182</sup> *Id.* at 1382.

<sup>183</sup> *Id.*

<sup>184</sup> *Masco Corp. v. United States*, 303 F.3d 1316, 1326–27 (Fed. Cir. 2002).

<sup>185</sup> *Seal-Flex, Inc. v. Athletic Track and Court Constr.*, 172 F.3d 836, 848–49 (Fed. Cir. 1999) (Rader, J., concurring).

<sup>186</sup> *Id.*

<sup>187</sup> *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997):



invocation of § 112, ¶ 6 by making it clear to the public and the courts that the claim drafter has clearly elected not to invoke § 112, ¶ 6.

3. **Avoid using the word “function.”** As explained above, a court may be asked to decide whether a gerund is an act or function.<sup>188</sup> Referring to the step in the patent as a function could be used to find that the step recites a function instead of an act.

4. **Avoid reciting the function of a step in the claim.** The language of the statute indicates that it may be invoked when a step and a specified function is recited in a claim limitation. By merely reciting a list of steps without corresponding functions, § 112, ¶ 6 may be avoided.<sup>189</sup> In *Utica Enterprises*, the court even stated that one step which did not recite a function was even farther removed from § 112, ¶ 6 than another similar step which did recite an associated function.<sup>190</sup>

While Judge Rader’s concurring position suggests that a court may still identify a function of a step when the limitation does not recite one by engaging in a careful study of the various claim limitations, the claim as a whole, and the specification, such an approach appears to be contrary to the language of the statute and the treatment given to means-plus-function limitations.<sup>191</sup> In this regard, the Federal Circuit has emphasized that when construing a means-plus-function limitation, a court does not have leeway in selecting the corresponding function, but rather is constrained to use only the actual function recited in the claim limitation.<sup>192</sup> For example, in *Generation II Orthotics*, the Federal Circuit remarked “[a]s we stated in *Micro Chem*, [§ 112, ¶ 6] does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim.”<sup>193</sup> In the context of method claims, if a step is recited without reciting a corresponding function and the statute permits only use of the specified function, the statute should then not apply to the limitation. Certainly, given that a court is not free to assign a function different from a recited function for a means-plus-function limitation, it should not be free to divine the identity of a function of a step when none has been recited in the claim.

5. **Recite both a function and an act for a step.** As an alternative to avoiding reciting a function, this option entails carefully and clearly reciting an associated function for a step while also clearly reciting an associated act. Under Judge Rader’s test, § 112, ¶ 6 is invoked only for a step which performs a function without the recital of an act for performing the function.<sup>194</sup> By clearly identifying an act and a function associated with each step, § 112, ¶ 6 would be avoided.

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The statute thus in effect provides that an element in a combination method or process claim may be recited as a step for performing a specified function without the recital of acts in support of the function. Being drafted with the permissive “may,” the statute does not require that steps in a method claim be drafted in step-plus-function form but rather allows for that form.

*Id.* See also *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1584 (Fed. Cir. 1996).

<sup>188</sup> *Seal-Flex*, 172 F.3d at 848–49.

<sup>189</sup> See *Cardiac Pacemakers*, 381 F.3d at 1382; *O.I. Corp.*, 115 F.3d at 1583.

<sup>190</sup> *Utica Enters., Inc. v. Fed. Broach & Mach. Co.*, 109 F. App’x 403, 410 (Fed. Cir. 2004).

<sup>191</sup> *Seal-Flex*, 172 F.3d at 849–50.

<sup>192</sup> *Generation II Orthotics v. Med. Techs., Inc.*, 263 F.3d 1356, 1363 (Fed. Cir. 2001).

<sup>193</sup> *Id.* (quoting *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1257 (Fed. Cir. 1999)).

<sup>194</sup> *Seal-Flex*, 172 F.3d at 849.

Of course, this approach has the downside of requiring the claim drafter to clutter up a claimed step with additional phrases. These additional phrases may then serve either intentionally or unintentionally to further limit the scope of the recited step. Where the prior art affords a broad recital of a step, it would generally be undesirable to unnecessarily limit the scope of the claim in an effort to avoid the risk of unintentionally being found to have invoked § 112, ¶ 6. There is also the risk that a court may not construe the recited step, function, and act as intended by the drafter but instead that find no act is present, rather, only additional functions. Under such a scenario, the claimed step is hit with a double whammy by invoking § 112, ¶ 6 for multiple terms, and thus, likely further narrowing its scope.

#### CONCLUSION

The latest decision by the Federal Circuit in *Cardiac Pacemakers* joined by Judge Rader himself may prove very helpful in restoring greater certainty to patentees and the public and ease the burden on courts. Read in conjunction with the language of the statute which requires the limitation to recite a step and a “specified function” and the corresponding implications from the *Utica Enterprises* decision, the *Cardiac Pacemaker* decision may help courts to step away from the complicated analysis of the *Seal-Flex* concurring opinion. Using the test proposed by Judge Rader in *Seal-Flex*, courts may have to confront the “difficulty of distinguishing acts from functions” and engage in a “careful analysis of the limitation in the context of the overall claim and the specification”<sup>195</sup> in an effort to discern an unexpressed function for a step recited without a function.<sup>196</sup>

However, under the recent *Cardiac Pacemakers* decision, courts may be allowed to recognize § 112, ¶ 6 does not apply where the patentee has chosen to recite a method comprising a series of steps, without using the “step for” transition and without reciting functions associated with each step.<sup>197</sup> In this regard, it should be noted that in four of the six Federal Circuit decisions that substantively addressed whether a method claim limitation invoked § 112, ¶ 6, namely, the *O.I. Corp.*, *Epcor Gas*, *Utica Enterprises*, and *Cardiac Pacemakers* decisions, the Federal Circuit did not engage in an analysis to determine whether an initial gerund in a limitation was a function or an act. Rather, these cases can be understood to treat the initial gerund of a limitation simply as a step. When a method limitation does not contain *additional* language which is alleged to be the corresponding function of the initial gerund, the analysis is over—§ 112, ¶ 6 does not apply. Use of such an approach will greatly simplify step-plus-function analysis, allowing the courts, the parties, and the public to readily conclude that § 112, ¶ 6 does not apply to the great many method claims which merely recite a series of steps without the additional recital of functions

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<sup>195</sup> *Id.* at 849–50.

<sup>196</sup> *Id.* at 850 (“If the language of the claim element does not expressly state its function, the function of that element may nonetheless be discernible from the context of the overall claim and the disclosure in the specification.”).

<sup>197</sup> *Cardiac Pacemakers, Inc. v. Saint Jude Med., Inc.*, 381 F.3d 1371, 1381 (Fed. Cir. 2004) (“[C]laiming a step by itself, or even a series of steps, does not implicate § 112 ¶ 6”) (quoting *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1582 (Fed. Cir. 1997)).

for each of those steps. For such claims, the semantic and questionable inquiry into whether a gerund is an act or a function can thus be entirely avoided.