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A Patent Saved Is a Patent Earned: A Word of Caution for Software Patent Practitioners

by Michael L. Kiklis

The 1952 Patent Act created a new way of drafting method claims. Patent practitioners could draft claims with elements called "step-plus-function elements." Using such a claim element, a drafter could recite a step corresponding to a function without reciting the supporting acts.¹ Because courts construe these elements to cover the acts described in the specification as well as their equivalents,² they construe the claims narrowly. As a result, patent practitioners have not exactly flocked to use the step-plus-function approach.

Successfully avoiding this approach, however, can be difficult, for very few cases have explained how this provision is invoked. Because of the sparsity of case law in this area, a patent practitioner may draft a claim not expecting it to be interpreted as a step-plus-function claim, only to find that a court does so interpret it in a litigation involving the patent. This interpretation may result in a narrow claim construction or, worse, patent invalidity.

This article describes the problems associated with an unwitting invocation of step-plus-function treatment, explores the genesis of step-plus-function claiming, describes the gap in the existing framework for determining whether a claim element should be treated as step-plus-function, and then attempts to fill in the gap.

A Trap for the Unwary

Step-plus-function claiming and its sibling, means-plus-function claiming, originated as part of the 1952 Patent Act. The provision providing support for such claiming follows: "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."³

Claim elements invoking § 112, ¶ 6 are construed to cover the "corresponding structure, material, or acts described in the specification and equivalents thereof,"⁴ the elements thus receiving a narrow construction from the court.⁵ Consequently, potential infringers have an easier time avoiding infringement. This is one reason why patent practitioners try to avoid the trap of § 112, ¶ 6. But another reason should motivate them as well.

A patent practitioner may draft a claim not expecting it to be interpreted as a step-plus-function claim, only to find that a court does so interpret it in a litigation.

Step-plus-function claiming can also result in a patent's being held invalid. Under existing case law, steps in a method claim can prompt step-plus-function treatment when the step is directed to a function without reciting the supporting acts.⁶ So far, the Federal Circuit has not clearly enunciated the difference between a "function" and an "act." Thus, a court might conclude during litigation that a claim element is directed to a function instead of an act, thereby invoking § 112, ¶ 6, even though the drafter had no such intention.

Such an unwitting invocation of § 112, ¶ 6 can be disastrous for the patent owner. If a claim element invokes it, the patent can be found invalid on at least three grounds:⁷ (1) invalidity for failing to particularly point out and distinctly claim the subject matter of the invention under 35 U.S.C. § 112, ¶ 2; (2) invalidity for failure of the written description to support the breadth of the claims under 35 U.S.C. § 112, ¶ 1; and (3) invalidity for failure of the specification to provide an enabling disclosure, also under 35 U.S.C. § 112, ¶ 1. Each merits separate discussion.

Regarding the first basis for invalidity, 35 U.S.C. § 112, ¶ 2 states: "The specification shall conclude with

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one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." Thus, the applicant for a patent must particularly point out and distinctly claim the invention. Although the applicant may functionally claim an invention through either step-plus-function claiming or means-plus-function claiming, "one must set forth . . . what is meant by that language."⁸ In the case of step-plus-function claiming, the patent must describe the acts supporting the function, and "if [the patent] fails to set forth an adequate disclosure, the [patent] has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112."⁹ Accordingly, the patent may be found invalid.

Concerning the second basis for invalidity, each application or patent must conform with the written description requirement of § 112, ¶ 1, which states in its entirety:

The specification shall contain a *written description* of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.¹⁰

To conform with the written-description requirement, the patent specification "must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed,"¹¹ and the specification must describe the invention "with all its claimed limitations."¹² The invalidity problem arises because § 112, ¶ 6 states that the claim covers "the corresponding structure, material, or acts *described in the specification*."¹³ Thus, if a court construes an element to be directed to function without the recitation of acts that support that function and the specification does not provide any indication of such supporting acts, the patent may be held invalid under the written-description requirement.¹⁴

Similarly, the third ground of invalidity—the enablement requirement—may cause problems as well. The key question when deciding enablement is "whether a person skilled in the pertinent art, using the knowledge available to such a person and the disclosure in the patent document, could make and use the invention without undue experimentation," although

some experimentation is permissible.¹⁵ Thus, where a claim element is found to be directed to function without recitation of supporting acts and the specification fails to disclose such acts, the enablement requirement may be violated unless the supporting acts are known to one of skill in the art.

These step-plus-function problems are particularly troublesome for software patent practitioners.

These step-plus-function problems are particularly troublesome for software patent practitioners. Software patent protection usually includes method claims, where the steps recited in the claim reflect the novel functionality of the software. In fact, because software by its nature performs step-by-step processing, method claims reciting a sequence of steps perhaps reflect the most popular way of seeking software patent protection. Oftentimes, the elements in method claims for software patents can be decomposed into narrower substeps, particularly when the drafter is claiming the steps performed by a program that makes use of lower-level software to perform those substeps. In such a situation, one could argue that such steps are mere function and the substeps are the supporting acts, in which case the failure to recite the substeps can lead to the problems described above. Thus, because the Federal Circuit has not clearly described the distinction between function and acts, an invalidity trap may be waiting to be sprung during litigation for the unwary software patent practitioner.

The Genesis of Step-Plus-Function Claiming

To understand how an element ends up being construed in step-plus-function form, one must first look to the history of the provision. Section 112, ¶ 6 first appeared in the 1952 Patent Act as § 112, ¶ 3¹⁶ and has not been amended since. Congress enacted this provision in response to *Halliburton Oil Well Cementing Co. v. Walker*, a case that rejected claims that "do not describe the invention, but use 'conveniently functional language at the exact point of novelty.'"¹⁷ Section 112, ¶ 6 now expressly allows means-plus-function claims, although such means only cover those means that are "equivalent" to the actual means shown in the patent specification.¹⁸

As Judge Rich has said, "[t]he 'master rule' of statutory construction is to carry out the legislative intent."¹⁹ True interpretation requires that the "words in a statute be taken in the sense which the *writers* attached to them, unless the intent of someone other than the writer is sought."²⁰ In the case of the 1952 Patent Act, the writers were not the legislators: "Members of the Congress wrote only a few words of the Patent Act. Committee counsel wrote certain sections and rearranged a few others. The Patent Act was written basically, however, by patent lawyers drawn from the Patent Office, from industry, from private practice, and from some government departments."²¹

Even though the legislature had little to do with the drafting of the Patent Act, "it is doubtful that many laws received such close scrutiny and careful attention of those most concerned as did the 1952 [Patent] Act."²² Judge Rich's comments are supported by Mr. Crumpacker, a member of the House Subcommittee on Patents at the time the bill passed:

A good portion [ninety-five percent] of the members of both bodies never knew that the legislation was under consideration, or that it had passed, let alone what it contained.

In the House, the bill went through on the Consent Calendar—along with, on the same day, dozens of other pieces of legislation. When it was reached on the calendar, no questions were asked and no explanations were offered. There was not even an insertion in the record to explain the bill. The entire time consumed by the passage of the bill probably did not total [thirty] seconds. Only a handful of members—the members of the "Objectors' Committee" on the two sides of the aisle—were paying any attention to what was going on. How can the House, as a legislative body, be said to have any "intent" with respect to the bill?²³

The Senate also had no significant debate on the Act.²⁴ Judge Rich thus concluded that any legislative intent with regard to the 1952 Patent Act was lacking.²⁵ In fact, all the legislative history can be summed up in the following sentence: "A new paragraph relating to functional claims is added."²⁶

Because Congress had no "intent," Mr. Crumpacker directed those in search of the meaning of the 1952 Patent Act to the writers of the Act:

When the courts, in seeking to interpret the language of the Act, go through the ritual of seeking to ascertain

the "intent of Congress" in adopting same, they would do well to look to the writings of these men—Federico, Rich, Harris, and the others—as they, far more than any member of the House or Senate, knew and understood what was intended by the language used.²⁷

Thus, to understand the language of § 112, ¶ 6, one should look to the writings of P. J. Federico,²⁸ who was the then Examiner-in-Chief of the US Patent and Trademark Office. Although Federico is often looked to for the intent of the 1952 Patent Act, it should be noted that the Federal Circuit has warned against doing so.²⁹

As P. J. Federico stated in his commentary:

The last paragraph of section 112 relating to so-called functional claims is new. It provides that an element of a claim for a combination (and a combination may be not only a combination of mechanical elements, but also a combination of substances in a composition claim, or steps in a process claim) may be expressed as a means or step for performing a specified function, without the recital of structure, material or acts in support thereof. It is unquestionable that some measure of greater liberality in the use of functional expressions in combination claims is authorized than had been permitted by some court decisions, and that decisions such as that in *Halliburton Oil Well Cementing Co. v. Walker*, 67 S. Ct. 6, 329 U.S. 1, 91 L. Ed. 3 (1946), are modified or rendered obsolete, but the exact limits of the enlargement remain to be determined. The language specifies "an" element, which means "any" element, and by this language, as well as by application of the general rule that the singular includes the plural, it follows that more than one of the elements of a combination claim may be expressed as different "means" plus statements of function. The language does not go so far as to permit a so-called single means claim, that is a claim which recites merely one means plus a statement of function and nothing else. Attempts to evade this by adding purely nominal elements to such a claim will undoubtedly be condemned. The paragraph ends by stating that such a claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. This relates primarily to the construction of such claims for the purpose of determining when the claim is infringed (note the use of the word "cover"), and would not appear to have much, if any, applicability in determining the patentability of such claims over the prior art, that is, the Patent Office is not

authorized to allow a claim which "reads on" the prior art.³⁰

Thus, the history of the provision has shed little light on exactly what is a step-plus-function element and how it is identified. Although providing more guidance, the case law still leaves some questions unanswered.

The Federal Circuit's Framework for Step-Plus-Function

Given the strong correlation between means-plus-function claims and step-plus-function claims, it is beneficial to review the Federal Circuit's framework for analyzing means-plus-function claims, as Judge Rader did in his concurrence in *Seal-Flex, Inc. v. Athletic Track & Court Construction*.³¹ The Federal Circuit's means-plus-function framework raises a presumption that § 112, ¶ 6 applies if the word "means" appears in the claim element.³² This presumption can be overcome in two ways: when the claim recites sufficient structure for performing the function, or when it fails to recite a function associated with the means.³³ Just like use of the word "means" raises a presumption, the failure to do so has an opposite effect, because such a failure generally renders § 112, ¶ 6 inapplicable.³⁴ But when the element invokes purely functional terms even though the word "means" is not used, § 112, ¶ 6 may be implicated.³⁵

The Federal Circuit has stated 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."³⁶ The Federal Circuit "interpret[s] the term 'steps' to refer to the generic description of elements of a [method claim] and the term 'acts' to refer to the implementation of such steps."³⁷ The Federal Circuit has also stated that merely "claiming a step by itself, or even a series of steps, does not [necessarily] implicate § 112, ¶ 6."³⁸

In providing further guidance to this area, Judge Rader has recently set forth the following framework for step-plus-function identification: Use of the phrase "steps of" to introduce the steps of a claim should generally not invoke application of § 112, ¶ 6.³⁹ Conversely, use of the phrase "step for" to introduce an element will generally invoke § 112, ¶ 6.⁴⁰ Even

though the phrase "step for" is used, if the element recites sufficient acts for performing the specified function, § 112, ¶ 6 is not implicated.⁴¹

The use of the phrase "step for," however, is not necessary to invoke § 112, ¶ 6. Specifically, if a claim limitation lacking this phrase recites only function without reciting supporting acts for performing that function, such an element will be treated as invoking § 112, ¶ 6.⁴² In determining the difference between function and acts, Judge Rader provided this instruction:

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., its 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.⁴³

After stating his framework, Judge Rader applied it to the following limitation: "spreading an adhesive tack coating for adhering the mat to the foundation over the foundation surface."⁴⁴ Judge Rader found the phrase "step for" to be lacking and found the elements of the claim to be introduced by the phrase "steps of," thus concluding that the verb "spreading" tended to show an act rather than a function.⁴⁵ Judge Rader then further analyzed the element to determine whether it only recited the underlying function, finding that the function of the element was "adhering" because of the preposition "for."⁴⁶ As a result, Judge Rader concluded that the element recited the act of spreading and did not invoke § 112, ¶ 6.⁴⁷

Although it is not clear whether the rest of the Federal Circuit will follow his lead, Judge Rader's analysis seems sound and certainly provides much more guidance for patent practitioners than was there before. Additional clarity, however, is necessary. Specifically, in his opinion, Judge Rader hypothesized that had the recitation stated, "adhering the mat to the foundation," it would have invoked § 112, ¶ 6 because it would then have recited function without the specific act.⁴⁸ Judge Rader, however, did not provide his rationale for

such an outcome. So patent practitioners are still left with little guidance on the difference between a function and an act and may thus unwittingly invoke step-plus-function treatment even though they used "steps of" to introduce the elements and even though they avoided the use of the phrase "step for." This leaves a gap in the case law, which the remainder of this article attempts to fill.

Such examples may lead one to believe that the only way to draft elements in a method claim is to use verbs that cannot be decomposed into narrower steps, which if true would signal a significant narrowing of software patent claims.

Although some sources may attempt to fill this gap by stating that virtually any method claim element invokes § 112, ¶ 6,⁴⁹ others have an opposite interpretation.⁵⁰ The proper view remains somewhere in the middle. In the only cases addressing step-plus-function, what the Federal Circuit has found to constitute acts have, for the most part, been acts that themselves are not decomposable into narrower steps.⁵¹ For example, in *O.I. Corp. v. Tekmar*⁵² the court found that the element of "passing the analyte slug through the passage" did not invoke step-plus-function treatment, and in *Serrano v. Telular Corp.*, the Federal Circuit found that "determining . . . the last-dialed number of the telephone number" did not invoke § 112, ¶ 6.⁵³ Furthermore, as stated above, Judge Rader found that "spreading an adhesive" likewise did not invoke § 112, ¶ 6.

In these cases, what were found to be acts were mostly acts that were not decomposable into narrower steps. In other words, a general term (e.g., attaching) was not used as an umbrella to encompass a number of nondecomposable, narrower steps (e.g., stapling, gluing, riveting, etc.), each of which could be used to perform the processing of the general term. Instead, one of the nondecomposable steps was recited. Such examples may lead one to believe that broad claiming is dead and that the only way to draft elements in a method claim and avoid § 112, ¶ 6 is to use verbs that cannot be decomposed into narrower steps, which if

true would signal a significant narrowing of software patent claims.

Often in claiming software, the drafter will claim the software at the level at which it operates without regard for the underlying steps performed by lower layers. For example, a program may send data to another program by invoking a low-level function to perform the data transfer. The program may not be concerned with (or even know of) whether the mechanism used is an interprocess-communication mechanism, a remote-procedure call mechanism, a file-transfer mechanism, or some other data-transfer mechanism. Thus, the claim may recite the step of "sending data to a remote program." If this view of the case law is correct, the sending step may be found to be functional and consequently invoke § 112, ¶ 6. This view, however, seems an overly restrictive view of the case law.

The better view is not that nondecomposable steps are the only steps to constitute acts, but that such nondecomposable steps are only a subset of what constitutes "acts": there are other kinds of steps that also constitute acts and thus avoid § 112, ¶ 6. The parallel analysis used for means-plus-function claiming provides a strong argument that any verb with an art-recognizable meaning of an identifiable group of steps would also constitute acts under *Greenberg v. Ethicon Endo-Surgery, Inc.*⁵⁴ In *Greenberg*, the Federal Circuit found that when the name for a structure has a "generally understood meaning" in the art indicating a type of device, § 112, ¶ 6 was not implicated.⁵⁵ Such an analogy fits well in the step-plus-function area, where if a term has a generally understood meaning in the art as covering a definable narrower set of steps, then such a term would not be functional in nature, but would instead recite an act. Additionally, of course, the drafter could state in the specification the steps intended to be covered by such an umbrella term.⁵⁶ In sum, where the phrase "step for" is not used, step-plus-function treatment is inapplicable when either (1) the term cannot be decomposed into narrower steps, (2) the term has a generally understood meaning itself, or (3) the term was defined in the specification to particularly cover a set of steps. This framework appears to fill in the gap in a manner consistent with analogous Federal Circuit case law. The framework not only allows for broad claiming but also provides claim drafters with clearer rules.

Patent/Computer Software

Conclusion

The Federal Circuit has not been particularly clear on how to distinguish function from acts so as to avoid the invocation of § 112, ¶ 6. In fact, there is a significant gap that could lead an unwary patent practitioner into an invalidity trap. But by following the parallel analysis of means-plus-function case law, a workable framework does exist that both allows for broad claiming and avoids the invocation of step-plus-function treatment.

Notes

1. See 35 U.S.C. § 112, ¶ 6 (1994).
2. *Id.*
3. *Id.*
4. *Id.*
5. See *Micro Chem., Inc. v. Great Plains Chem. Co.*, No. 98-1393, slip. op at 9 (Fed. Cir. Oct. 6, 1999) ("Claim treatment outside of the requirements of § 112, ¶ 6 generally gives the claims a broader scope. If the meaning of these claim elements is not limited to the specific acts described in the specification and their equivalents through operation of § 112, ¶ 6, then they will be given their ordinarily understood meanings in the art.").
6. *O.I. Corp. v. Tekmar Co., Inc.*, 115 F.3d 1576, 1582 (Fed. Cir. 1997) ("[Section 112, ¶ 6] is implicated only when steps plus function without acts are present.").
7. In *In re Cohn*, 438 F.2d 989, 991 (C.C.P.A. 1971) (citations omitted), the C.C.P.A. stated that "[i]t is true that claim language which expresses performing particular steps until a given result or state is reached, or a given condition obtained, may be proper under § 112, ¶ 6. This is with the proviso, however, that the claim otherwise satisfies the requirements of the first and second paragraphs of § 112."
8. *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (*en banc*).
9. *Id.*
10. 35 U.S.C. § 112, ¶ 1 (emphasis added).
11. *Gentry Gallery, Inc. v. Berklene Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998) (quoting *In re Gosteli*, 872 F.2d 1008, 1012, (Fed. Cir. 1989)) (alteration in original).
12. *Id.* (quoting *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). "[T]he test for sufficiency of support . . . is whether the disclosure of the application relied upon 'reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.'" *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983)).
13. 35 U.S.C. § 112, ¶ 6 (emphasis added).
14. Note that § 112, ¶ 6 "does not add any additional description requirement to that set forth in the first paragraph of § 112]. On the other hand, . . . [§ 112, ¶ 6] cannot be read as creating an exception . . . to the description requirement of" § 112, ¶ 1. *In re Knowlton*, 481 F.2d 1357, 1366 (C.C.P.A. 1973).
15. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 941 (Fed. Cir. 1990) (citing *In re Gay*, 309 F.2d 769, 774 (C.C.P.A. 1962); *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576, (Fed. Cir. 1984)).
16. Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792, 798-799.
17. 329 U.S. 1, 8 (1946) (quoting *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 371 (1938)), quoted in *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 27 (1997).
18. *Warner-Jenkinson*, 520 U.S. at 28.
19. Honorable Giles S. Rich, "Congressional Intent—Or, Who Wrote the Patent Act of 1952?," in *Nonobviousness—The Ultimate Condition of Patentability 1:1* (John F. Witherspoon ed., 1980).
20. *Id.* at 1:2.
21. *Id.* at 1:10.
22. *Id.*
23. *Id.* at 1:11 (quoting "Symposium on Patents," in *Summary of Proceedings, Section of Patents, Trademark and Copyright Law 141, 143* (American Bar Center, 1962).
24. *Id.* at 1:12.
25. "Realistically, the 'intent,' with respect to the Patent Act of 1952, was the intent of a subcommittee to pass the bill prepared by the patent lawyers, as agreed to by codification counsel, committee counsel, and the members of the subcommittee. You need only compare the bill prepared by the coordinating committee with the law as enacted to see this. . . .
". . . That one legislator, who knows nothing of the details and who has only one vote, stands to ask one question of another legislator, who also knows nothing of the details and who gives a non-committal answer, is no expression of 'legislative intent.' At most, it shows clearly the intent of not more than one or two men." *Id.* at 1:13.
26. H.R. Rep. No. 82-1923, at 19 (1952).
27. *Rich*, *supra* note 20, at 1:14 (quoting "Symposium on Patents," *supra* note 23).
28. "[Mr. Federico] not only wrote the first draft of the Act himself and actively participated for the next two years in every detail of its revisions but, having been made a special consultant to the House subcommittee in charge of the project, he was also a principal author of House Report No. 1923 on the bill, which was virtually copied by the Senate Judiciary Committee as its Report No. 1979, and the author of the section-by-section Revisors Notes. He submitted the latter to Ashton and the Drafting Committee for suggestions." *Paulik v. Rizkalla*, 760 F.2d 1270, 1277 (Fed. Cir. 1985).
29. *Donaldson*, *supra* note 8, at 1193 n.3 ("In addition, P. J. Federico's post-ACT 'Commentary on the New Patent Act,' 35 U.S.C.A. § 1 (1954 ed., West), reprinted in 75 *JPOS* 162 (1993), is not legislative history per se that may be relied upon to indicate Congressional intent. Even if it were, the comments con-

tained therein do not suggest that Federico knew of any particular intent by Congress regarding the manner in which the sixth paragraph, then the third paragraph, should be applied. In this particular, he was merely stating his personal views.”)

30. P. J. Federico, “Commentary of the New Patent Act,” 75 *J. Pat. and Trademark Off. Soc’y* 161, 186–187 (1993) (reprinted from 35 U.S.C.A. (West 1954)).

31. 172 F.3d 836, 847–851 (Fed. Cir. 1999).

32. *Id.* at 848 (citing *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1427 (Fed. Cir. 1997); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996)).

33. *Id.* (citing *Sage*, 126 F.3d, at 1427–1428; *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1574 (Fed. Cir. 1996)).

34. *Id.* (citing *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1213–1215 (Fed. Cir. 1998)).

35. *Id.* (citing, as an example, *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 530–531 (Fed. Cir. 1996)).

36. *O.I. Corp.*, *supra* note 6, at 1583.

37. *Id.* at 1582–1583.

38. *Id.* at 1583 (“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.”).

39. *Seal Flex*, *supra* note 31, at 849 (Rader, J., concurring).

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.* at 849–850.

44. *Id.* at 850.

45. *Id.*

46. *Id.* at 850–851.

47. *Id.* at 851.

48. *Id.*

49. *See, e.g.*, Kenneth R. Adamo, “Drafter’s Dilemma: Means-Plus-Function and Guidelines in Hilton-Davis, Oh My!,” 78 *J. Pat. and Trademark Off. Soc’y* 367, 389 (1996) (“[I]t is fundamental that nearly all steps recited in process claims fall within this provision [§ 112, ¶ 6] of the Patent Statute.” (citations omitted)).

50. *Texas Instruments Inc. v. Hyundai Elecs. Indus. Co.*, No. 2-98CV0073-TH, 1999 US Dist. LEXIS 11265, at *10 (E.D. Tex. Apr. 22, 1999) (“By deciding that ‘ing’ verbs cannot serve as functions in step claims, but can serve to recite acts in such claims, the Federal Circuit appears to have made it difficult, if not impossible, to cast a method claim as a step-plus-function claim.”).

51. It is worth noting that in *In re Roberts*, 470 F.2d 1399, 1403 (C.C.P.A. 1973), the C.C.P.A. found a recitation claiming a result (“reducing the coefficient of friction”) without claiming the steps needed to achieve the result implicated § 112, ¶ 6.

52. 115 F.3d 1576, 1584.

53. 111 F.3d 1578, 1580, 1583.

54. 91 F.3d 1580, 1583 (Fed. Cir. 1996).

55. *Id.*

56. In this situation, of course, even if § 112, ¶ 6 were invoked, the narrowing construction would be less harmful.

