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Means-Plus-Function Claims in Light of Donaldson and Other Recent Case Developments

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On February 14, 1994, the Court of Appeals for the Federal Circuit ("the Federal Circuit") decided In re Donaldson Co., Inc., in which the court laid out how the United States Patent and Trademark Office ("the patent office") must construe "means-plus-function" claims both during original prosecution and during reexamination. This article discusses the law of means-plus-function claims in light of several recent pronouncements of the Federal Circuit, the Donaldson decision, and a recent decision of the Board of Patent Appeals and Interferences ("Board" or "BPAI"), ex parte Alappat, currently pending before the Federal Circuit for en banc review.

I. BACKGROUND

A. Overruling The Supreme Court's Decision In Halliburton

In Halliburton Oil Well Cementing Co. v. Walker, the United States Supreme Court invalidated a patent claim for failing to particularly point out and distinctly claim the invention in violation of the predecessor statute to 35 U.S.C. § 112. The only improvement over the prior art was the addition of a certain mechanical acoustic resonator for tuning a receiver to a certain frequency. The claim in question recited the elements of a prior art apparatus plus the improvement recited as a "means... for tuning said receiving means." The Supreme Court ruled that it was impermissible to describe "[the] most crucial element in the 'new' combination in terms of what it will do rather than in terms of its own physical characteristics or its arrangement in the new combination apparatus." A claim could not properly cover any device that performed the claimed function "now known or hereafter invented, whether the device be an actual equivalent of the [pat-
entee’s] ingredient or not, . . .”8 In the 1952 Patent Act,9 Congress overruled Halliburton, by enacting a statutory section, now codified at 35 U.S.C. § 112, paragraph 6 [hereinafter “section 112(6)"],10 which 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 claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.11

Thus, while this new statute sanctioned use of so-called “means for” or “means-plus-function” language found impermissible in Halliburton, it also addressed the Supreme Court’s concern by limiting the literal scope of such language to that which distinctly claims the invention, that is, to “the corresponding structure, material, or acts described in the specification and equivalents thereof.”12 Nevertheless, patent practitioners have historically employed “means for” limitations in claims with the intent and expectation that in litigation they will be able to argue that the limitation reads on (i.e., literally covers) any means for performing the claimed function, known and unknown at the time the application for patent was filed, so long as such an interpretation would not render the claim invalid. Thus, in effect, the “means for” limitation was a moving target for the accused infringer. With each prior art reference the accused uncovered, the patentee would merely argue for a slightly narrower construction of the “means for” language that distinguished over the prior art yet still could be said to cover the accused device.13

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10. “Congress enacted paragraph six, originally paragraph three [in the 1952 Act], to statutorily overrule that holding [in Halliburton].” Donaldson 16 F.3d at 1194.
12. This article does not address the issue of whether § 112(6) has application to method claims reciting limitations in “step for performing a function.” The statute indicates that such might be the case, referring to a combination of “step[s]” that may be understood as relating to steps in a process claim. Indeed, in a 1954 commentary written by P.J. Federico, a principal drafter of the 1952 Act, he explicitly states that the last paragraph of “section 112 relating to so-called functional claims” extends to “a combination of . . . steps in a process claim . . .”. P.J. Federico, Commentary on the New Patent Act, 35 U.S.C.A. § 1 (1954 ed. West), reprinted in 75 J. PAT. & TRADEMARK OFF. SOC’Y 161, 186 (1993)(emphasis added). However, no case known to the author has ever unambiguously applied section 112(6) to method claims.
13. At the oral argument on the appeal in In re Alappat, see infra note 63 and text following, Judge Plager enquired whether the patent office could require the applicant to state what he intends to cover by his means plus function language. Solicitor McKelvey responded: “There’s plenty of patent attorneys in the room. If you ask them if their claims are narrow and there’s not a one of them is going to admit any claim is narrow until you show them a piece of art that arguably gets close and then they’ll argue with you about it.” See Edward J. Webman, The
B. Section 112(6) Determinations in Litigation

In litigation, the following rules of claim construction have emerged. A claim must be interpreted the same way for determining validity and infringement.\(^{14}\) "Means-plus-function" claim language must be construed in accordance with section 112(6).\(^ {15}\) Thus, in litigation, a means-plus-function limitation is construed under section 112(6) as literally covering only the structure disclosed in the specification and equivalents thereof that perform identically the function recited. A claim thus cannot be literally infringed unless the accused device includes a structure for performing the claimed function that is the same as or equivalent to the structure disclosed in the patent specification for performing the claimed function.\(^ {16}\) Similarly, in litigation a claim cannot be found to be anticipated by the prior art under 35 U.S.C. § 102 unless that prior art discloses a structure for performing the claimed function that is the same as or equivalent to the structure disclosed in the patent specification for performing the claimed function. Furthermore, the prior art cannot render a claim obvious under 35 U.S.C. § 103 unless the structure disclosed in the patent specification for performing the claimed function, or an equivalent of that structure, would have been obvious in view of the prior art.

One tactic formulated by patent practitioners for evading the narrow claim construction required by section 112(6), was to include a "means for" limitation in a "broad" independent claim, then add limiting structure in claims depending therefrom. In litigation, the patentee would then argue that the doctrine of claim differentiation precluded the court from construing the "means for" language in the independent claim as including the structural details recited in the narrower, dependent claim.\(^ {17}\) The Federal Circuit, however, has recently rebuffed those tactics by ruling that the doctrine of claim differentiation is sub-

\(^{14}\) W.L. Gore & Associates, Inc. v. Garlock, Inc., 842 F.2d 1275, 1279 (Fed. Cir. 1988);
Senmed Inc. v. Richard-Allen Medical Industries, 888 F.2d 815, 818 n.7 (Fed. Cir. 1989).


\(^{17}\) Under the doctrine of claim differentiation, when a patent claim does not contain a certain limitation and another claim (independent or dependent or both) does, that limitation cannot be read into the former claim in determining validity or infringement. SRI Intern. v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1122 (Fed. Cir. 1985) (an independent claim 1 cannot be read to include the limitation of claim 2 which depended therefrom or the limitation of another independent claim 3).
servient to the claim construction mandated by section 112(6). The same should be the result where the practitioner replaces the word "means" with a similar term like "device." Some patent holders in litigation have presented arguments that "means for" language should be allowed a broad range of structural equivalents. However, these arguments are being met with ever-increasing disfavor. Although the Federal Circuit has never adequately defined a test or standard for determining equivalents under section 112(6), the court has indicated that the scope of section 112(6) equivalents may require, at a minimum, that the accused structure operate in substantially the same way as the structure described in the patent specification. Furthermore, while it is true that the Federal Circuit has noted on a number of occasions that the test for section 112(6) equivalents is not the same as the test for equivalents under the

18. See The Laitram Corp. v. Rexnord Inc., 939 F.2d 1533 (Fed. Cir. 1991), in which the Federal Circuit held that it was proper under section 112(6) to construe the "means for joining" limitation in claim 21 to include a "cross member" as recited in claim 24 depending therefrom:

[The interpretation of the 'means for joining' to include a cross member comes from the specification via section 112(6), not from claim 24. Thus, the prohibition against reading limitations from a dependent claim into the independent claim is not violated. Laitram's argument that claim 24 prevents claim 21 from being interpreted as statutorily mandated by section 112(6) must be rejected. . . .

Simply stated, the judicially developed guide to claim interpretation known as "claim differentiation" cannot override the statute. A means-plus-function limitation is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure. If Laitram's argument were adopted, it would provide a convenient way of avoiding the express mandate of section 112(6). We hold that one cannot escape that mandate by merely adding a claim or claims specifically reciting such structure or structures.

Id. at 1538.

19. In Application of Lundberg, 244 F.2d 543 (C.C.P.A. 1979), claim 54, directed to an apparatus for the exploration of mineral deposits in the earth conducted from an airplane while in flight, recited "a maneuverable airplane adapted to transport an operating screw and . . . a magnetic detecting instrument carried by the airplane and adapted while in the air automatically to receive and respond to with a sensitivity of one gamma or less." Id. at 544. For purposes of decision, the court construed the airplane and a magnetic detecting instrument plus the adapted clause to be the equivalent of a means plus function clause. Id. at 546. See also Sam Silverberg, The Patent & Trademark Office Clashes with the Federal Circuit Over Means Plus Function, 74 J. PAT. & TRADEMARK OFF. Soc'y 675, 680 n.17 (1992).

20. See Valmont Industries, Inc. v. Reinke Manufacturing Co., 983 F.2d 1039, 1042-44 (Fed. Cir. 1993) ("control means" limitation not met by an accused structure which operated in a different way than structure disclosed in the patent). But see Baltimore Therapeutic Equipment v. Loredan Biomedical, 30 U.S.P.Q.2d (BNA) 1672, 1677-78 (Fed. Cir. 1994) (Rich, J., concurring) (providing an interesting analysis of section 112(6) equivalents, arguing that an "equivalent structure" is not the same as a "structural equivalent," and that only the former is required under section 112(6)).
doctrine of equivalents, it may very well be the case that recent Federal Circuit decisions severely limiting the doctrine of equivalents will be carried over to equivalents under section 112(6). Thus, the moving “means” target employed by patentees should be slowed if not stopped altogether.

C. Section 112(6) Determinations in the Patent Office Relative to the Prior Art

The patent office, which evaluates patentability (validity) of proposed claims, but does not consider infringement issues, has long applied a rule that in prosecution, section 112(6) is not applicable when evaluating a claim for patentability over the prior art.23 Prior to Don-

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21. Valmont, 983 F.2d at 1043-44 (“A determination of section 112 equivalence does not involve the equitable tripartite test of the doctrine of equivalents. As this court has stated, ‘the sole question’ under section 112 involves comparison of the structure in the accused device which performs the claimed function to the structure in the specification.”).

22. See, e.g., id. at 1043. Unless there are “insubstantial changes” (i.e., “colorable changes”) by an “unscrupulous copyist,” the equities favor the accused infringer and infringement under the doctrine of equivalents, which is the “exception” rather than the rule, should not be found. As another court has noted,

for if the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose. Competitors will never know whether their actions infringe a granted patent.


Analogous arguments can be made for a very limited application of section 112 equivalents. See also Hilton Davis Chemical Co. v. Warner-Jenkinson Co., Inc., No. 93-1088, 1993 WL 502162 (Fed. Cir. Dec. 12, 1993). In Hilton, the Federal Circuit agreed sua sponte to consider en banc:

(1) whether infringement under the doctrine of equivalents requires more than the Graver Tank tripartite test being met—i.e., the test laid out in Graver Tank & Manufacturing Co. v. Linde Air Products Co., 339 U.S. 605 (1950), that infringement exists where the accused device performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed invention;

(2) whether application of the doctrine is in the court’s discretion when there is no literal infringement of equivalents; and

(3) whether the doctrine of equivalents provides an equitable remedy to be determined by the court, or involves fact issues for the jury.


23. A different rule of construction is applied in an interference setting, and for statutory subject matter determinations as discussed below.

An interference "typically" arises when a patent applicant becomes aware of an issued patent whose claims cover the same invention as the applicant’s. The applicant then amends his application to include claims copied from the issued patent in order to provoke an interference. As a result of the copied claim, which is referred to as the "count," there is a clear conflict of priority between the patent application and the issued patent, which include claims that are iden-
aldson, a means-plus-function limitation was construed during prosecution as literally covering all means (structures) for performing the claimed function.\textsuperscript{24} Thus, during original prosecution, it was possible for the patent office to rely on prior art to reject claims for which the prior art disclosed the claimed function, but disclosed no specific structure for performing the function.\textsuperscript{25} Likewise, in reexamination, a requester could successfully urge that claims should be reexamined and ultimately cancelled based on prior art that disclosed the claimed function, but disclosed no specific structure for performing the function.

\section*{D. The Anomaly: The Patent Office vs. Litigation}

An anomaly therefore existed. A claim might be rejected in prosecution as being unpatentable over the prior art because the function recited in a means-plus-function limitation is disclosed by the prior art. However, the same claim might be held valid in litigation because the prior art did not disclose a structure for performing the claimed

\begin{footnotes}
\item[24]\textit{In re Lundberg}, 244 F.2d 543 (C.C.P.A. 1957); \textit{Application of Sweet}, 393 F.2d 837 (C.C.P.A. 1968).
\item[25]\textit{See} Harry F. Manbeck, \textit{Applicability of the Last Paragraph of 35 U.S.C. § 112 to Patentability Determinations Before the Patent and Trademark Office}, (hereinafter \textit{PTO Notice}) 1134 OFF. GAZ. PAT. OFFICE 631, 636 (Jan. 7, 1992), \textit{reprinted in} 1135 OFF. GAZ. PAT. OFFICE 8 (Feb. 4, 1992) (discussing the patent office's sweeping and long-standing practice of ignoring section 112(6) and construing means plus function limitations so as to cover any means for performing the function, such that a prior art reference that met the recited function met the limitation).
function that was the same as, or equivalent to, or an obvious variant of, the structure disclosed in the patent specification for performing the claimed function.

A similar anomaly existed with respect to reexamination proceedings. A third party charged with infringement could seek to invalidate claims of the subject patent in a reexamination proceeding where the "means for" limitations would be met by prior art disclosing the claimed function. In contrast, in litigation, the claims would survive because the prior art structure was not the same as or equivalent to the structure disclosed in the patent.26

Thus, it is not surprising that third parties sued for infringement have sought reexamination and a stay of the litigation pending the results of the reexamination when the asserted claims include limitations written in means-plus-function language.27

E. The Federal Circuit's Unsuccessful Efforts to Control the Patent Office

The Federal Circuit, concluding that such an anomaly was intolerable and contrary to what it perceived to be the literal language of section 112(6), has on a number of recent occasions directed the patent office to apply section 112(6) in prosecution.28 But the patent office repeatedly refused to follow the Federal Circuit's directives. In a Notice in the Official Gazette (hereinafter, the "PTO Notice"), then-Commissioner of Patents and Trademarks, Harry F. Manbeck, explained the basis for the patent office's refusal to comply with the

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26. Another advantage is that in litigation every claim of a patent is presumed to be valid. 35 U.S.C. § 282. This presumption may only be overcome by "clear and convincing" evidence. Lindemann Maschinenfabrik v. AM. Hoist and Derrick, 730 F.2d 1452, 1459 (Fed. Cir. 1984). Additionally, "in determining validity, a claim must be construed to uphold its validity if possible." Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 749 (Fed. Cir. 1987). However, in reexamination there is no presumption of validity. In re Etter, 756 F.2d 852 (Fed. Cir. 1985) (en banc). Claims subject to reexamination are to be "given their broadest reasonable interpretation consistent with the specification." In re Yamamoto, 740 F.2d 1569, 1571 (Fed. Cir. 1984) (quoting In re Reuter, 651 F.2d 751, 756 (C.C.P.A. 1981)). One rationale for this difference in treatment is that, in original prosecution and in reexamination of an unexpired patent, the applicant or patentee may amend or add claims so there is no reason to leave any doubt as to the intended scope of the claims. In re Etter, 756 F.2d 852, 858-89 (Fed. Cir. 1985) (en banc) (reexamination); In re Prater, 415 F.2d 1393, 1404-05 (C.C.P.A. 1969) (original prosecution).


28. In re Bond, 910 F.2d 831, 833 (Fed. Cir. 1990)(reh'g denied); In re Iwahashi, 888 F.2d 1370, 1375 (Fed. Cir. 1989).
Federal Circuit's orders.29 The PTO Notice, however, indicated that the patent office might agree to apply section 112(6) in prosecution if that was the decision of an en banc panel of the Federal Circuit.30 According to Commissioner Manbeck, there is early and well-settled precedent authorizing the patent office to construe claims in prosecution without reference to section 112(6).31 That precedent includes decisions from the Court of Custom and Patent Appeals (CCPA), the predecessor court to the Federal Circuit, whose decisions have been adopted by the Federal Circuit as controlling precedent that it is bound to follow.32 Only an en banc panel of the Federal Circuit can overturn such precedent—panel decisions are of no legal effect.33 Accordingly, the patent office continued to follow this earlier controlling CCPA precedent, rather than contrary panel decisions by the Federal Circuit.

II. THE DONALDSON AND ALAPPAT DECISIONS

A. The Federal Circuit’s Decision in Donaldson Should Bring The Patent Office in Line

In Donaldson, the Board affirmed the Examiner's rejection of claims in a reexamination proceeding as being unpatentable over prior art. In reaching that conclusion, the Examiner and the Board interpreted means-plus-function language consistent with patent office practice and the CCPA precedent, ignoring section 112(6) so that each means-plus-function limitation was deemed to cover all means for performing the claimed function.34 More specifically, in Donaldson,

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29. PTO Notice, supra note 25.

30. Id.

31. Id., (citing In re Lundberg, 244 F.2d 543 (C.C.P.A. 1957); In re Sweet, 393 F.2d 837 (C.C.P.A. 1968)). Scholars differ on the issue of whether these CCPA decisions in fact stand for the proposition that "means plus function" claims are to be construed as covering all means for performing the claimed function. See Silverberg, supra note 19, at 678-682 (arguing an interpretation of the CCPA cases that does not establish such binding precedent); Wesley W. Whitmyer, Jr., The Patent and Trademark Office's Refusal to Follow In re Bond, 74 J. PAT. & TRADEMARK OFF. Soc'y 397, 400 (1992) (arguing that In re Knowlton, 481 F.2d 1357 (C.C.P.A. 1973), supersedes prior CCPA precedent and requires that § 112(6) be applied in patentability determinations before the patent office); R. Carl Moy, The Interpretation of Means Expression During Prosecution, 68 J. PAT. & TRADEMARK OFF. Soc'y 246 (1986) (agreeing that the CCPA precedent requires a literal reading of the means-plus-function limitation).

32. South Corp. v. United States, 690 F.2d 1368 (Fed. Cir. 1982)(en banc).

33. "This court has adopted the rule that prior decisions of a panel of the court are binding precedent on subsequent panels unless and until overturned en banc. Where there is a direct conflict, the precedential decision is the first." Newell Companies, Inc. v. Kenney Mfg. Co., 864 F.2d 757, 765 (Fed. Cir. 1988).

34. Donaldson, 16 F.3d at 1193 (quoting a portion of the Board decision in which the Board concluded that the structure provided in the specification was irrelevant to the patentability analysis); id. at 1194 (noting the unsuccessful argument by the Commissioner that disregarc
the patentee appealed from a decision of the Board, reaffirmed on reconsideration, sustaining the Examiner’s rejection of claim 1 of a patent in reexamination, under 35 U.S.C. § 103. The patent in reexamination related to industrial air-filtering devices often referred to as “dust collectors.” Claim 1 was an apparatus claim reciting an “air filter assembly for filtering air laden with particulate matter, said assembly [10] comprising: [a plurality of elements].” For purposes of the appeal, the patentee conceded that a single prior art reference (Swift) met every limitation in claim 1 except for the limitation of a “means, responsive to pressure increases in said chamber caused by said cleaning means, for moving particulate matter in a downward direction” recited in the last clause of claim 1.

The Board held that the last limitation was also met by Swift because the recited function was disclosed by Swift. The Board rejected the patentee’s argument that the structure corresponding to the means in Swift was not equivalent to the structure disclosed in the patent in reexamination, which was a “flexible wall, diaphragm-like structure.” The Board did not interpret the “means” as limited to the flexible wall, diaphragm-like structure disclosed in the patentee’s specification, and equivalents thereof. Those structural limitations were found in other claims, including claims 2 and 3 depending from claim 1 and, according to the Board, would not be implied within the meaning of the “means” recited in claim 1.

B. The Federal Circuit, Sitting En Banc, Overrules the Board in Donaldson

The Federal Circuit agreed to consider en banc the patentee’s appeal of the Board’s decision in Donaldson. Subsequently, eleven members of the Federal Circuit issued a unanimous en banc decision reversing the Board’s decision and holding that the patent office must construe means-plus-function claim elements during prosecution—original prosecution and reexamination—the same way that courts construe such claim elements during litigation. In other words, the

35. Id. at 1190.
36. Id. at 1191.
37. Id. at 1192.
38. Id. at 1192.
39. Donaldson, 16 F.3d at 1196.
40. Id. at 1192.
41. Id. at 1196-97.
42. Id. at 1189.
43. Id. at 1193.
patent office must construe the element under section 112(6) as being limited to the structure disclosed in the patent specification for performing the claimed function and equivalents thereof. If the prior art does not disclose the same structure, or an equivalent structure, the claim element is not literally met and the claim is not anticipated under section 102. If the prior art does not provide a teaching that renders the claimed structure or its equivalent obvious, then the claim is not obvious under section 103. Hence a claim that, pre-Donaldson, would have been rejected during prosecution as being anticipated because the prior art disclosed the claimed function, might now be allowed during prosecution because the prior art failed to disclose the same or equivalent structure as disclosed in the patent specification or an obvious variation thereof.

The Federal Circuit ruled that “[t]o the extent that In re Lundberg, In re Arbeit, or any other precedent of this court suggests or holds to the contrary, it is expressly overruled.” The Federal Circuit had no difficulty in rejecting each and every argument posited by the Commissioner for a different interpretation. For example, the Federal Circuit concluded that the language of section 112(6) was clear and unambiguous, requiring that a claim for a combination expressed in means-plus-function format “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof,” making no distinction between litigation and prosecution. The Federal Circuit found no evidence of Congressional intent to the contrary, and determined that it would give no deference to the patent office’s long-standing interpretation of the statute, which was simply wrong. The Federal Circuit refused to consider relevant the interpretation given to the language by P.J. Federico, a principal drafter of the statutory language who was then an Examiner-in-Chief, finding his “personal” opinion to be no evidence of Congressional intent. The Federal Circuit opined that its holding

44. Donaldson, 16 F.3d at 1193-94 (citations omitted).
45. Id. at 1193.
46. Id. at 1194, 1193 n.3.
47. In his 1954 commentary on the 1952 Patent Act, P.J. Federico explained:

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.

Federico, supra note 12, at 186-87.

The Federal Circuit, however, found such writings unpersuasive because: (1) the Commentary “is not legislative history per se that may be relied upon to indicate Congressional intent;”
was consistent with the principle that claims are to be given their "broadest reasonable interpretation" during prosecution—it simply held that the "broadest reasonable interpretation" that an Examiner may give means-plus-function language is the broadest interpretation consistent with the mandates of section 112(6). The Federal Circuit also explained that limitations found only in the specification were not being read into a claim; instead, as in litigation, the meaning of the "means" limitation in the claim is merely being properly interpreted in light of the specification as required by the statute.

The Federal Circuit also concluded that its holding did not conflict with the second paragraph of section 112, which provides: "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." The Federal Circuit opined:

Indeed, we agree with the general principle espoused in In re Lundberg, 244 F.2d at 547-48, 113 U.S.P.Q. at 534 (C.C.P.A. 1979), that the sixth paragraph of section 112 does not exempt an applicant from the requirements of the first two paragraphs of that section. Although paragraph six statutorily provides that one may use means-plus-function language in a claim, one is still subject to the requirement that a claim "particularly point out and distinctly claim" the invention. Therefore, if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.

This dialogue is important because it indicates that a specification that does not adequately disclose a structure corresponding to the claimed "means" may render the claim invalid.
The Federal Circuit then reviewed the specification and concluded that the rigid wall hopper design disclosed in the Swift prior art reference was not the same as or equivalent to the flexible-wall, diaphragm-like structure disclosed in the specification, and would not have been obvious based on such prior art. As it had done a year earlier when construing section 112(6) in an infringement context, the Federal Circuit declined the opportunity to announce an explicit test for determining the existence of a structural equivalent, but nevertheless concluded that a structure was not equivalent if it failed to operate substantially the same way as the structure disclosed in the patent specification. Particularly, the Federal Circuit concluded that the prior art hopper walls would not vibrate in response to pressure increases caused by pulse-jet cleaning and thus were not the equivalent of (and further did not render obvious) the flexible-wall, diaphragm-like structure disclosed in the subject patent as corresponding to the "means, responsive to pressure" language recited in claim 1. The Federal Circuit thus reversed the Board's decision. It would seem that the patent office now has little practical alternative but to follow the Federal Circuit's en banc decision in Donaldson.

54. Donaldson, 16 F.3d at 1195-97.

55. See supra notes 20-22.

56. The Federal Circuit commented: "The word 'equivalent' in 35 U.S.C. § 112, paragraph 6, should not be confused with the doctrine of equivalents." Donaldson, 16 F.3d at 1195 n.8. This is consistent with the Federal Circuit's approach in the infringement context. See supra note 14.

57. The Federal Circuit did not address in any meaningful way the patent office's "Policy Consideration" argument to the effect that the "PTO's workload will increase' without the benefit of live testimony and testing facilities, the PTO will have to resolve structural equivalency' and "it would be impractical for the PTO to attempt to apply the last clause of § 112's final paragraph when comparing prior art to claims in ex parte prosecution. PTO Notice, supra note 30, at 635.

58. The author has been advised that the Assistant Commissioner's office is reviewing the case and has not yet made a policy determination. One option is to petition the U.S. Supreme Court to review the Federal Circuit's decision. However, such a review is rarely granted. One possibility might be for the Commissioner to argue that under a controversial Supreme Court decision, Chevron, U.S.A., Inc. v. National Resources Defense Council, 467 U.S. 837 (1984), it is the patent office and not the Federal Circuit that is primarily responsible for interpreting the Patent Act, and that the Federal Circuit must defer to its determination unless that determination is not reasonable or is contrary to clear (unambiguous) Congressional intent. However, one commentator recently explored this issue in considerable depth and concluded that such a position would be untenable for a number of compelling reasons. See R. Carl Moy, Judicial Deference to the PTO's Interpretation of the Patent Law, 74 J. PAT. & TRADEMARK OFF. SOC'Y 397 (1992).

[Note: On May 17, 1994, while this article was in press, the patent office issued guidelines for interpreting claims in light of the Donaldson decision; see section IV, "Epilog," infra for a discussion of these guidelines.]
As a final point, it should be noted that, in Donaldson, the Federal Circuit concluded that its holding will be applicable "regardless of the context in which the interpretation of means-plus-function language arises, i.e., whether as part of a patentability determination in the PTO or as part of a validity or infringement determination in a court."\(^{59}\) In other words, "paragraph six facially covers every situation involving the interpretation of means-plus-function language."\(^{60}\) In a footnote, the Federal Circuit then made it clear that "regardless of the context" meant just that, by citing cases in which section 112(6) was applied to various validity and patentability issues, including, for example, the evaluation of whether a claim recites statutory subject matter under 35 U.S.C. § 101.\(^{61}\) This provides insight as to how the Federal Circuit will soon rule in another case, In re Alappat,\(^{62}\) discussed in the next section.

C. The Federal Circuit's En Banc Review of Ex parte Alappat

A patent claim cannot be directed to a "mathematical algorithm" (or an "abstract mathematical formula") since such an algorithm is not patentable subject matter within the meaning of 35 U.S.C. § 101, which defines patentable subject matter as any "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof. . . ."\(^{63}\) A mathematical algorithm is "a procedure for solving a given type of mathematical problem,"\(^{64}\) in which mathematical values or coded representations thereof ("process inputs") are subjected to procedural steps (e.g., manipulations; computations; comparisons; conversions; logical, arithmetic or algebraic operations; and the like) to arrive at certain other mathematical values or coded representations thereof ("process outputs") representing the "solution" to the "mathematical problem."\(^{65}\) The test for determining whether a mathematical algorithm is being claimed is beyond the

59. Donaldson, 16 F.3d at 1193 (emphasis added).
60. Id. at 1194 (emphasis added).
61. Id. at 1193 n.4.
What this article addresses, however, is the use of "means plus function" language relative to the issue of whether a nonstatutory mathematical algorithm is being claimed.

Assume that a method claim is directed to a nonstatutory mathematical algorithm. It is settled law that statutory subject matter may be presented by converting the method claim into an apparatus claim by changing each recited step to a "means for" performing that step under section 112(6) and describing the interconnection or interrelationship between such means and structures. The nonstatutory mathematical algorithm is converted to a statutory "machine" or "manufacture" since the claim as a whole defines an apparatus in the form of a combination of interrelated structures.

But what if the interrelationship of the "means for" elements are not recited in the claim? That is the subject of Ex parte Alappat, and the Federal Circuit's en banc review thereof. CCPA precedent also provided that, under section 112(6), "claims under 35 U.S.C. 101 drafted in means plus function format are to be examined in light of the 'corresponding structure, material, or acts described in the specification and equivalent thereof.' Nevertheless, where the disclosure is such that the means elements may read on a "general purpose data processor of known type operating under the control of a stored program," such claims are treated as indistinguishable from method claims for purposes of section 101 unless it is demonstrated that the claims are drawn to specific apparatus distinct from other apparatus capable of performing the identical functions.

In Ex parte Alappat, a panel of the Board, expanded to include then-Commissioner Manbeck, Deputy Commissioner Comer, and Assistant Commissioner Samuelson, addressed on reconsideration an apparatus claim on a rasterizer for converting vectors in a data list. The...

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68. Id. Alternatively, one could change each recited step to a specific structure for performing that step as was the case with some of the claims in In re Akamatsu, 22 U.S.P.Q.2d 1915, 1922-23 (B.P.A.I. 1992) (Board rejected independent apparatus claim 6 as being directed to nonstatutory mathematical algorithm, but allowed independent apparatus claim 8 which limited two of the means to including a 4-bit-shifted wired-logic, and limited a third means to including a one-bit-shifted wired logic).


70. In re Meyer, 688 F.2d 789, 796 n.6 (C.C.P.A. 1982).

71. Id. at 796 n.3, quoting In re Pardo, 684 F.2d 912, 916 n.6 (C.C.P.A. 1982).
claim recited four "means plus function" limitations. The application's specification disclosed Arithmetic Logic Units (ALUs), barrel shifters, and Read-Only Memories (ROMs) as the structures in a special purpose hardware implementation of the invention corresponding to the "means" recited in the claim. Nevertheless, the Board ruled that the claim recited a nonstatutory mathematical algorithm, refusing to interpret the claimed "means" elements in full accordance with section 112(6). The Board explained that "[w]hen claims are drafted in the form of 'means for' performing method steps it is difficult to tell whether the invention is to a method which has been drafted entirely in 'means for' apparatus form to evade the § 101 inquiry, or whether the invention is really to a new apparatus for performing a nonstatutory process, which apparatus would be statutory subject matter." For that reason, the patent office treats "claims entirely in 'means for' terms as indistinguishable from the method in § 101 determinations [in order to] shift the burden onto the applicant to show how the claims truly define specific apparatus." "The applicant is required to demonstrate that the claims define specific apparatus, as opposed to 'other apparatus capable of performing identical function.' Moreover, "where a 'means for' claim does not distinguish over a digital computer operating on a stored program . . . it is proper to treat the claim as indistinguishable from a method claim."

Here, according to the Board, the subject claim "as drafted, reads on a general purpose digital computer means to perform the various steps under program control," so it was "proper to treat the claim as if drawn to a method." The patent office "will not presume that a stored program digital computer is not within the section 112(6) range of equivalents of structure disclosed in the specification." If that was as far as the Board had gone, its decision would not necessarily have been totally inconsistent with Donaldson. The Board would merely be concluding that the structures disclosed in the specification corresponding to the means are so conventional that they would be entitled to a virtually unlimited breadth of equivalents so that the mathematical algorithm was in effect being preempted.

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73. Id. at 1343.
74. Id. at 1342.
75. Id. at 1343.
76. Id. at 1345.
77. In re Alappat, 23 U.S.P.Q.2d at 1345.
78. Gottschalk v. Benson, 409 U.S. 63, 72 (1972) ("The patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.").
But the Board went even further. The Board held that its decision would be the same even if appellants were willing to admit that a stored program digital computer were not within the range of equivalents. . . . It is improper to presume that 'conventional structure in the art' and its equivalents limit the claimed means for performing functions to less than any and every means. Even if the range of equivalents could be determined at the time of examination or applicant were willing to admit to a range of equivalents under § 112(6), § 112(2) requires that the claim particularly point out and define the apparatus, i.e., what is and is not within the scope of the claim.\(^{79}\)

Thus, the Board in effect concluded that at least where conventional prior art structures are disclosed in the specification as corresponding to each means, the Board will draw an irrebuttable presumption that an equivalent includes a general purpose digital computer operating under program control, and any other means for performing the functions recited in the claims. That is, the author submits, inconsistent with Donaldson.

The Federal Circuit agreed to consider en banc the appeal of the Board's decision.\(^{80}\) If the Federal Circuit meant what it said in Donaldson, it will likely reverse the Board for failing to apply section 112(6) in evaluating whether a claim recites statutory subject matter.

D. Possible Ramifications of the Federal Circuit's Recent Decisions

The practical impact of the foregoing decisions cannot be predicted with any degree of certainty. Much will depend on the Federal Circuit's decision in Alappat and the rules and procedures adopted and implemented by the patent office thereafter. Nevertheless, a few comments and suggestions are warranted in light of what we do know from the Federal Circuit's recent decisions and the comments made by the judges of that esteemed body during oral argument in Donaldson and Alappat.

Means-plus-function limitations should not be used as the exclusive or even primary claim format for obtaining broad patent protection. Under the recent Federal Circuit precedent, such as Laitram and Valmont, there should be substantial concern that the scope of section 112(6) equivalents will be narrow, even if there are dependent claims further defining the structure of the means recited in an independent claim. When means-plus-function language is to be employed, it is

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absolutely imperative that the specification adequately describe the corresponding structure in broad language, specifying as many examples as possible. Where appropriate, it would be desirable to state in the specification that any means having a certain capability or characteristic will be adequate. This will increase the likelihood that in litigation the claim language will be afforded a broad range of section 112(6) equivalents.81

Practitioners should resist the temptation to utilize means-plus-function language where it is difficult to locate the specific structures that correspond to the "means" recited in the claim. That is often the case, unfortunately, where the means claims are first added after an application has been filed. Care needs to be taken to ensure that the structure corresponding to the claimed means is readily discernible from the specification and drawings. Otherwise there will be increased risk that an accused infringer will be positioned to argue successfully that the structure corresponding to the means limitation embraces a multitude of different elements disclosed in the specification, one or more of which may be absent from the accused device. Alternatively, there will be the definite possibility that the patent office will reject the claim as failing to satisfy the requirement of section 112(2). Indeed, it would not be surprising for the patent office to now adopt rules requiring that the applicant identify the structures in the specification corresponding to each means recited in a claim as a precondition to allowance of any claim utilizing means-plus-function language.

There should be a recognition of the possibility that the patent office may issue two patents to the same or different entities, containing claims with identical language but to be afforded substantially different scope. At oral argument in Alappat, Chief Judge Nies offered her concern that multiple patents could be granted to the same or different entities with the identically worded means-plus-function claims, yet they would have different constructions. This would be the case, for example, if Texas Instruments were to obtain further calculator patents, now, twenty years after obtaining its original patents, simply because the specifications would be different from the calculator patents of twenty years ago.82

81. Of course, this should also preclude the party from arguing, during prosecution or in litigation, that a structure disclosed in a prior art reference as having such capability or characteristic is not the equivalent of the structures disclosed in the specification corresponding to a means limitation in a claim.
82. See Webman, supra note 13, at 55.
Though it would appear to be a circumvention of the Federal Circuit's decision in *Donaldson*, one should at least muse over the possibility that the patent office will respond by adopting policies and procedures that limit when means-plus-function limitations may be utilized. At the oral argument in *Alappat*, Judges Newman and Nies both indicated that the patent office might decline to allow means-plus-function language for an element in a claim where patentability rested solely on the structure corresponding to the means. In effect, Judge Nies' question—"Should there be a reevaluation of claim drafting rather than legal interpretation"—would be answered in the affirmative. This might square nicely with the language of the statute, which states that "[a]n element in a claim for a combination may be expressed" in means-plus-function format, which, if construed liberally, would allow the patent office to adopt rules as to when such a claim is appropriate. That should be contrasted with the further language of the statute that when means-plus-function language is used, it "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof"—the decision in *Donaldson* was bottomed on that mandatory language. Such a patent office policy would likewise not run counter to the principle that section 112(6) overruled the Supreme Court's decision in *Halliburton*. In *Halliburton*, patentability of the claim at issue rested in the function recited in the means-plus-function limitation; it was not dependent on the structure of the means for performing the function. Thus, the proposed policy of the patent office would continue its practice of allowing means-plus-function language in a *Halliburton*-type situation. Means-plus-function language would be disallowed only where the function was known or obvious and patentability resided solely in the structure disclosed in the specification for performing the function, a circumstance not presented in *Halliburton*.

Another approach the Federal Circuit might take in *Alappat* is to use its en banc status as an opportunity to reverse prior precedent set by three-judge panels, and limit section 112(6) equivalents to structures that are known as of the date the application is filed. That would be consistent with the concept that the “specification shall contain a written description of the invention” under section 112(1). A patent specification can at most be said to contain a written description of structures explicitly recited therein and known equivalents. The speci-

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83. *See id.* at 56-58 and 63-64.
84. *See id.* at 58.
85. *See supra* note 10 and accompanying text.
fication cannot properly be said to contain a written description of future structural equivalents. That would leave the doctrine of equivalents, an equivalence determined at the time of infringement, for litigation.

One should expect the patent office to adopt a rule that, whenever the prior art meets the functional recitation of a means-plus-function limitation, the structure disclosed in the prior art will be presumed to be the structural equivalent of the structures disclosed in the patent specification. The burden will then shift to the applicant (or patentee in reexamination) to articulate cogent reasons why the two are not equivalent. Further anticipate that if the Examiner is persuaded to allow the claim, he will provide in a Statement of Reasons for Allowance a narrow construction of the scope of equivalents that he gave the means limitation in order to allow the claim. That Statement will no doubt be cited by accused infringers.

Patent applicants should scrutinize each means-plus-function limitation to ascertain whether the interrelationship of elements can be adequately defined and distinguished over the prior art without the need for the means element. For example, it would be more desirable to recite "A coupled to B" than "A, B and means for coupling A to B." The latter would limit the scope of the claim to products having a coupling means that is at least equivalent to the ones disclosed in the patent specification.

Due care should be taken before filing a request for reexamination of an issued patent based on prior art. Often, a requester relies on prior art that teaches the function recited in the claims of a challenged patent, but is sparse on the structures for performing those functions. Many Japanese patent applications, laid open for inspection, meet that description, as do most IBM technical disclosure bulletins and various other technical articles. Before Donaldson, reexaminations relying on such art have been quite successful. The claims were rejected and cancelled because the means limitations were construed as reading on any and all means for performing the recited function. Now, however, the patentee will have the opportunity to present arguments as to why the structure (if any) disclosed in the prior art reference is not the equivalent of and does not render obvious the structure disclosed in the patent specification. If carefully orchestrated, such an argument

87. See, e.g., Microsoft Corp. v. IQ Technologies Inc., 28 U.S.P.Q.2d 1477 (BNA) (Fed. Cir. 1993) (Federal Circuit affirmed summary judgment of non-infringement predicated on a ruling by the district court that a limitation of "connector means for electrical connection" was limited to "male-female type plugs and equivalents thereof for electrical connection" and did not encompass pads soldered to pins as in the accused product. The Federal Circuit rejected the argument that since it was an electrical connection any electrical connection should suffice.)
might not preclude the patentee from subsequently arguing in litigation that the corresponding structure in the accused device is the equivalent of the structure disclosed in the patent. This is possible because the structures in the accused device and the patent specification are often much closer to one another (i.e., "equivalent" to one another) than they are to the structure disclosed in the prior art to which neither is equivalent.

III. Conclusion

Unless and until the Supreme Court agrees to hear a substantive patent case, which it has not done since the formation of the Federal Circuit, the Federal Circuit is the final arbiter of patent issues. The Federal Circuit has not been shy about reversing prior precedent, sitting en banc where necessary to achieve its objective. The area of means-plus-function claims is only one of many areas at which the Federal Circuit is taking aim. It is imperative for any firm prosecuting patent applications in the United States, or enforcing patents or defending against charges of infringement in the United States, to be current on the most recent decisions of the Federal Circuit. That includes both published and unpublished decisions, the latter often providing keen insight as to where the court is going. Tread carefully. The law as it exists today may very well not be the law tomorrow.

IV. Epilogue

After this article was completed and while it was awaiting publication, the patent office issued a notice in the May 17, 1994 Official Gazette entitled Examination Guidelines for Claims Reciting A "Means or Step Plus Function" Limitation In Accordance With 35 U.S.C. § 112, 6th Paragraph. In that notice, the patent office stated that it would follow the Federal Circuit's holding in Donaldson. Therefore, "effective immediately, examiners shall interpret a § 112, 6th paragraph 'means or step plus function' limitation in a claim as limited to the corresponding structure, materials or acts described in the specification and equivalents thereof in accordance with the following guidelines." These guidelines were "distributed to patent examiners for guidance on examining practice and procedure relating to limitations falling under 35 U.S.C. § 112, 6th paragraph, after Donaldson, ... [and] will be incorporated into the Manual of Patent Examin-

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88. 1162 OFF. GAZ. PAT. OFFICE 59 (May 17, 1994).
89. Id.
The guidelines set out in this notice are interesting in a number of particulars.

A. Applicability of Section 112(6)

The patent office addressed the issue of “Identifying a § 112, 6th Paragraph Limitation.” The patent office began with the comment that

[a]lthough there is no magic language that must appear in a claim in order for it to fall within the scope of § 112, 6th paragraph, it must be clear that the element in the claim is set forth, at least in part, by the function it performs as opposed to the specific structure, material, or acts that perform the function.

The patent office then gave six examples that demonstrate that, consistent with its admonition that in prosecution claims be afforded their broadest reasonable interpretation, clever claim drafting should not and will not avoid application of section 112(6).

In one example, taken from Ex parte Stanley, a claim recited “a jet driving device so constructed and located on the rotor as to drive the rotor . . . .” In Stanley, the Board held that section 112(6) was applicable to the recited limitation, finding that “the term ‘device’ with respect to its significance and coverage is synonymous with the term ‘means,’” and that “[t]he addition of the words ‘jet driving’ to the term ‘device’ merely renders the latter term more definite and specific.” Thus, replacing the word “means” with a generic equivalent such as “device,” or “element,” or the like, should not affect the application of section 112(6). Nor should the applicability of section 112(6) turn on the use of a “tag” or “label” before the word “means” that does not recite meaningful structure and instead renders more definite the recited function, such as the label “jet driving” in the example. (Often the label is nothing more than a restatement of the recited function, as in another example provided by the patent office in which a limitation recited a “force generating means adapted to provide [a force]. . . .”) Neither should the application of section 112(6) be altered by the replacement of the preposition “for” with an equivalent

90. Id.
91. Id.
92. Id.
94. 1162 OFF. GAZ. PAT. OFFICE at 59, Example (1) and n.2 (emphasis added).
95. Ex parte Stanley, 121 U.S.P.Q. at 627.
96. Id. at 628.
transitional phrase; for example, "as to" as in the example. Moreover, adding structure to the "means" does not take the "means plus function" limitation out of the scope of section 112(6), as was true in another example cited by the patent office in which the limitation was a "call cost register means, including a digital display for providing a substantially instantaneous display for . . ." Adding some structure to the "means for" limitation does not render section 112(6) inapplicable.

In another example, taken from dictum in Ex parte Klumb, the patent office noted that the phrase "printing means" and "means for printing" both fall within the ambit of section 112(6). According to the Board in Klumb, "we see no necessity for construing the statute to require a particular grammatic construction, so long as the modifier of that term specifies a function to be performed." In Klumb, the Board also indicated that, while "latch means" might be construed as a "means for latching" and, therefore, within the purview of section 112(6), the phrase "wing means" or "plate means" would not be construed within the meaning of section 112(6). According to the Board, the phrases "means for winging" or "means for plating" were obviously not pertinent to the invention claimed. Therefore, the claim was properly rejected as being indefinite under section 112(1).

In two other examples, the patent office made clear that it would be applying section 112(6) to method claims. As noted above, section 112(6) provides that

[a]n 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.

While no case known to the author, and certainly no Federal Circuit decision, has applied section 112(6) to a method claim in the context of an infringement inquiry, the patent office has cited a few cases in

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100. 1162 OFF. GAZ. PAT. OFFICE at 59, Example (2) and n.3.
102. Id. at 695.
103. Id. at 695, 696.
104. Id.
105. See supra note 12 for a discussion of this issue.
106. The guidelines provide that the terms "step" and "act" are related much the same way that "means" and "structure" are related. 1162 OFF. GAZ. PAT. OFFICE at 60 ("acts (e.g. steps)").
which section 112(6) has been applied to a method claim for purposes of determining patentability.

More specifically, in one example, taken from In re Roberts, the claim recited a “method of corrugating polyethylene terephthalate film which comprises . . . reducing the coefficient of friction of the resulting film below about 0.40 as determined by the Bell test.” The specification of the patent application being examined described a three-step process for reducing the coefficient of friction as claimed. The examiner and the Board rejected the claim in part for being “indefinite” for the use of a “functional” limitation reciting “reducing the coefficient of friction,” which was regarded as “not a step but the result of an unstated step.” In other words, the examiner and Board concluded that the claim would need to recite specific steps for reducing the coefficient of friction, not only the results achieved by performing those steps.

The CCPA, however, reversed, concluding that recitation of a functional step—reducing the coefficient of friction—was authorized by then-section 112(3) (now section 112(6)). The CCPA thus appeared to apply the statute to a method claim. While it is debatable, the CCPA decision can be read for the proposition that the functional step recited is construed under the statute to be limited to the three-step process described in the specification for reducing the coefficient of friction and equivalents thereof. The patent office has certainly construed the decision in that fashion and cited it for that proposition. In the guidelines, the patent office notes that the claim language is a “step plus function” limitation, and that the omission of the preface “step for . . .” in the claim is not material—in a “step plus function [limitation]; ‘step’ [is] unnecessary.” The other example is of a similar nature and need not be separately discussed, except to note that in the guidelines the patent office notes that “[i]n the event that it is unclear whether the claim limitation falls within the scope of 112, 6th paragraph, a rejection under § 112, 2d paragraph may be appropriate.”

108. Id. at 1400; 1162 OFF. GAZ. PAT. OFFICE at 59, Example (5) and n.6.
109. Roberts, 470 F.2d at 1400.
110. Id. at 1402.
111. Id.
112. 1162 OFF. GAZ. PAT. OFFICE at 59, Example (5) and n.6. The patent office guidelines bring this point home by repeatedly referring to the limitation as a “means or step plus function limitation,” in the title and throughout the body of the guidelines.
113. Id., Example (6) and n.7, relying on Ex parte Zimmerley, 153 U.S.P.Q. 367 (Pat. & Trademark Office Bd. App. 1966), in which a claim limitation recited “raising the Ph of the resultant pulp to about 5.0 to precipitate”; the claim language was rejected by the examiner as
B. Single Means Claims

A holding of In re Hyatt,114 was that a single means claim—i.e., a claim that recites only a “means for [performing a specified function]” as its sole element—does not comply with the enablement requirement of section 112(1). The patent office guidelines provide that Donaldson does not affect that holding, because “Donaldson applies only to an interpretation of a limitation drafted to correspond to § 112, 6th paragraph, which by its terms is limited to ‘an element in a claim to a combination,’ it does not affect a limitation in a claim which is not directed to a combination.”115

C. Examining Procedure

1. The Search

The guidelines explain that, consistent with the principle repeated in Donaldson that during prosecution claim language should be given its broadest reasonable interpretation, examiners will search for a prior art reference that discloses the identical function specified in the “means or step plus function” limitation.116 “[U]nless an element performs the identical function specified in the claim, it cannot be an equivalent for the purposes of § 112, 6th paragraph.”117 Thus, the enquiry would end for purposes of determining anticipation, since a limitation would not be literally met.118

being indefinite; the Board reversed concluding that the limitation “is properly functional, as this is a common industrial expedient, and almost always means merely adding any alkali that does not interfere with the process reactions.” Ex parte Zimmerley, 153 U.S.P.Q. at 369.

114. 708 F.2d 712 (Fed. Cir. 1983).
115. 1162 OFF. GAZ. PAT. OFFICE at 59.
116. Id.
117. Id.
118. The guidelines do note that even where it is concluded that the prior art element is not equivalent to the structure, material or acts described in the applicant’s specification, the examiner must still make a section 103 analysis to determine if the claimed means or step plus function is obvious from the prior art to one of ordinary skill in the art. Thus, while a finding of non-equivalence prevents a prior art element from literally meeting a means or step plus function limitation in a claim, it does not prevent the prior art element from rendering the claim limitation obvious to one of ordinary skill in the art. Also, the guidelines provide the admonition that:

Because the exact scope of an “equivalent” may be uncertain, it would be appropriate to apply a §§ 102/103 rejection where the balance of the claim limitations are anticipated by the prior art relied on. In addition, although it is normally the best practice to rely on only the best prior art references in rejecting a claim, alternative grounds of rejection may be appropriate where the prior art shows elements that are different from each other, and different from the specific structure, material or acts described in the specification, yet perform the function specified in the claim.

Id. at 60.
2. The Examiner's Initial Obligation to Make a Prima Facie Case of Equivalence—and the Shifting of the Burden to the Applicant

For each reference located by the examiner that meets the functional recitation exactly, the examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. If the specification explicitly defines what is meant by the limitation for the purposes of the claimed invention, the examiner should interpret the limitation as having that meaning. If the examiner finds that a prior art element performs the exact function specified in the claim, and is not excluded by any explicit definition provided in the specification for an equivalent, the examiner should infer from that finding that the prior art element is an equivalent, and should then conclude that the claimed limitation is met by the prior art element. "No further analysis of equivalents is required of the examiner until applicant disagrees with the examiner's conclusion, and provides reasons why the prior art element should not be considered an equivalent."

Thus, the burden then shifts to the applicant to show that the element shown in the prior art is not an equivalent of the structure, material or acts disclosed in the application. If the applicant supplies no reasons or inadequate reasons, the limitation is deemed met.

Alternatively, if the disclosure is so broad as to encompass any and all structure, material or acts for performing the claimed function, the claims must be read accordingly when determining patentability. When this happens, the limitation otherwise provided by "equivalents" ceases to be a limitation on the scope of the claim, in that an equivalent would be any structure, material or act other than the ones

119. Id. at 59.
120. Id. The guidelines also recognize that the "equivalents" limitation as applied to a claim may also operate to constrict the claim scope to the point of covering virtually only the disclosed embodiments. This can happen in circumstances where the specification describes the invention only in the context of a specific structure, material or act that is used to perform the function specified in the claim.

121. Id. at 59-60.
122. Id. at 60 n.9.
123. Id. at 60.
described in the specification that perform the claimed function.\textsuperscript{124}

For example, the guidelines note that “\textbf{[t]}he description of an apparatus with block diagrams describing the function, but not the structure, of the apparatus is not fatal under the enablement requirement of § 112, 1st paragraph, as long as the structure is conventional and can be determined without an undue amount of experimentation.”\textsuperscript{125}

Thus, if the structure corresponding to a “means” element was shown in the specification in block form, “an equivalent is any element that performs the specified function.”\textsuperscript{126} This would lend itself to a prior art rejection under sections 102 or 103.\textsuperscript{127}

The guidelines also explain that if the applicant argues that the claim is limited to specific structural or functional characteristics as described in the specification (and does not include “equivalents” thereof) in order to distinguish over the prior art, then the claims must be amended to recite those characteristics unless the specification make it plain that the invention is so limited.\textsuperscript{128}

\textsuperscript{124} Id. In the guidelines, examples are given where: (1) the claimed invention is a combination of elements, one or more of which are selected from elements that are old \textit{per se}, or (2) apparatus claims are treated as indistinguishable from method claims. \textit{Id.}

\textsuperscript{125} 1162 OFF. GAZ. PAT. OFFICE at 61 n.20, citing \textit{In re Ghiron}, 442 F.2d 985, 991 (C.C.P.A. 1971).

\textsuperscript{126} 1162 OFF. GAZ. PAT. OFFICE at 61. ([Theory: since there is no corresponding structure, etc. in the specification to limit the means or step plus function limitation, an equivalent is any element that performs the specified function].”). On the other hand, if the structure shown in block form was not conventional and undue experimentation was required to design same, then the “means or plus function” limitation recited in the claim would not be supported by corresponding structure in the specification disclosure, and a rejection under section 112(1) would be appropriate. The claim would not be supported by an enabling disclosure because the person skilled in the art would not know how to make and use the invention without a description of elements to perform the function. \textit{Id.} Alternatively, a rejection under section 112(2) might be appropriate. The claim would be indefinite because the element would not be defined in the specification by corresponding structure. \textit{Id.}

\textsuperscript{127} \textit{Id.}

\textsuperscript{128} \textit{Id.}

[If] an applicant argues that the ‘means’ or ‘step’ plus function language in a claim is limited to certain specific structural or additional functional characteristics (as opposed to ‘equivalents’ thereof where the specification does not describe the invention as being only those specific characteristics, the claim should not be allowed until the claim is amended to recite those specific structural or additional functional characteristics.

\textit{Id.} The guidelines also note the obvious:

Finally, as in the past, applicant has the opportunity during proceedings before the Office to amend the claims so that the claimed invention meets all the statutory criteria for patentability. An applicant may choose to amend the claim by further limiting the function so that there is no longer identity of function with that taught by the prior art element, or the applicant may choose to replace the claimed means plus function limitation with specific structure material or acts that are not described in the prior art.

\textit{Id.}
3. Determining Whether an Applicant Has Met the Burden of Proving Non-Equivalence After a Prima Facie Case is Made

If the applicant disagrees with the inference of equivalence drawn from a prior art reference, the applicant may provide reasons why the applicant believes the prior art element should not be considered an equivalent to the specific structure, material or acts disclosed in the specification.\textsuperscript{129} Reasons include teachings in the specification or in the prior art reference that indicate that the prior art element is not an equivalent, and Rule 132 affidavit evidence of facts tending to show non-equivalence.\textsuperscript{130} Of course, any evidence proffered as to non-equivalence that is inconsistent with the disclosure of the specification is not adequate since the specification is supreme; it is only where the specification is inconclusive that some judgment is required.\textsuperscript{131} Moreover, “under no circumstance should an examiner accept as persuasive a bare statement or opinion that the element shown in the prior art is not an equivalent embraced by the claim limitation.”\textsuperscript{132}

Where judgment is required—e.g., where the specification is inconclusive in that it does not effectively define the scope of equivalents—it is the general rule that “an ‘equivalent’ is interpreted as embracing more than the specific elements described in the specification for performing the specified function, but less than any element that performs the function specified in the claim.”\textsuperscript{133} Of course, “[t]he interpretation will vary depending on how the element is described in the supporting specification.”\textsuperscript{134}

The guidelines cite four indicia as “are sufficient to support a conclusion that one element is or is not an ‘equivalent’ of a different element in the context of § 112, 6th paragraph.”\textsuperscript{135} “These examples are not intended to be an exhaustive list of the indicia that would sup-

\textsuperscript{129} Id. at 60.
\textsuperscript{130} Id.
\textsuperscript{131} When the applicant relies on teachings in applicant’s own specification, the examiner must make sure that the applicant is interpreting the “means or step plus function” limitation in the claim in a manner which is consistent with the disclosure in the specification. If the specification defines what is meant by “equivalents” to the disclosed embodiments for the purpose of the claimed means or step plus function, the examiner should interpret the limitation as having that meaning. If no definition is provided, some judgment must be exercised in determining the scope of “equivalents.”
\textsuperscript{132} Id. at 61.
\textsuperscript{133} Id. at 60.
\textsuperscript{134} Id.
\textsuperscript{135} Id.
port a finding that one element is or is not an equivalent of another element for the purposes of § 112, 6th paragraph.\textsuperscript{136} It is said that "[t]here could be other indicia that also would support the conclusion."\textsuperscript{137} However it is also said that "[a] finding according to any of the above examples would represent a sufficient, but not the only possible, basis to support a conclusion that an element is or is not an equivalent."\textsuperscript{138} In other words, each indicia or example is in and of itself sufficient, but not necessary, to establish equivalence.\textsuperscript{139}

While the Federal Circuit has repeatedly admonished in its recent decisions that the test for determining "equivalents" under section 112(6) is not the same as the test for determining equivalents under the doctrine of equivalents,\textsuperscript{140} three of the four indicia are well-settled indicia for determining the latter.\textsuperscript{141}

For example, the first of the indicia recited by the patent office is the \textit{Graver Tank}\textsuperscript{142} three-prong test for determining equivalents under the doctrine of equivalents which the Federal Circuit chastised the dis-

\begin{thebibliography}{99}
\bibitem{136} Id. at 61.
\bibitem{137} Id.
\bibitem{138} Id.
\bibitem{139} But see id.:
\begin{quote}
[i]n determining whether arguments or Rule 132 evidence presented by an applicant are persuasive that the element shown in the prior art is not an equivalent, the examiner should consider and weigh as many of the above-indicated or other indicia as are presented by applicant, and should determine whether, on balance, the applicant has met the burden of proof to show non-equivalence.
\end{quote}

This would appear to indicate that at least where a Rule 132 affidavit is at issue, all the indicia are weighed and balanced, and no one indicia is controlling.

\bibitem{140} See supra note 21.
\bibitem{141} Nevertheless, the patent office gives lip service to the Federal Circuit admonitions, stating:
\begin{quote}
An "equivalent" for the purposes of 112, 6th paragraph, should not be confused with the doctrine of equivalents. The doctrine of equivalents, most often associated with \textit{Graver Tank \& Mfg. Co. v. Linde Air Products}, 339 U.S. 605, 85 U.S.P.Q. 328 (1950), is sometimes applied to do equity among the parties before the court in an infringement action involving an issued patent. The doctrine typically involves a three-part inquiry—whether an accused device performs substantially the same function, in substantially the same way, to obtain substantially the same result as the claimed invention.

Section 112 6th paragraph limits the scope of the broad language of "means or step plus function" limitations, in a claim to a combination, to the structures, materials and acts described in the specification and equivalents thereof. The doctrine of equivalents equitably expands exclusive patent rights beyond the literal scope of a claim. Accordingly, decisions involving the doctrine of equivalents should not unduly influence a determination under § 112, 6th paragraph during \textit{ex parte} examination.
\end{quote}

\bibitem{1162} OFF. GAZ. PAT. OFFICE at 61.
\end{thebibliography}
strict court judge for relying upon in Valmont: 143 “1) Whether the prior art element performs the function specified in the claim in substantially the same way, and produces substantially the same results as the corresponding element disclosed in the specification.” 144

The second of the indicia noted by the patent office is another indicia for equivalents frequently relied upon by the courts in determining equivalents under the doctrine of equivalents: “2) Whether a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification.” 145

The fourth of the indicia relied upon by the patent office is the “equitable” factor in determining infringement under the doctrine of equivalents: “4) Whether the structure, material or acts disclosed in the specification represents an insubstantial change which adds nothing of significance to the prior art element.” 146 This fourth indicia, however, is nevertheless consistent with the Federal Circuit’s decision in Valmont. 147

Only the third of the indicia does not have its origin in an equivalence determination under the doctrine of equivalents:

3) Whether the prior art element is a structural equivalent of the corresponding element disclosed in the specification being examined. That is, the prior art element performs the function specified in the claim in substantially the same manner as the function is performed by the corresponding element described in the specification. 148

This last of the indicia is consistent with the decision in Valmont and Donaldson.

144. 1162 OFF. GAZ. PAT. OFFICE at 60.
145. Id. See Corning Glass Works v. Sumitomo Electric U.S.A., Inc., 868 F.2d 1251, 1260 (Fed. Cir. 1989) (“An important factor [in determining equivalents under the doctrine of equivalents] is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.”) (quoting Graver Tank, 339 U.S. at 609); see also Rite-Hite v. Kelley Co., Inc., 819 F.2d 1120 (Fed. Cir. 1987).
146. 1162 OFF. GAZ. PAT. OFFICE at 60-61.
147. Section 112 and the doctrine of equivalents have something in common. The word “equivalent” in section 112 invokes the familiar concept of an insubstantial change which adds nothing of significance. In the context of section 112, however, an equivalent results from an insubstantial change which adds nothing of significance to the structure, material, or acts disclosed in the patent specification. A determination of section 112 equivalence does not involve the equitable tripartite test of the doctrine of equivalents.
Valmont, 983 F.2d at 1043.
148. 1162 OFF. GAZ. PAT. OFFICE at 60-61.
D. Conclusion

The patent office has, as expected, determined that it has no alternative but to comply with the letter of the law laid down by the Federal Circuit in *Donaldson*. Claims will be construed in accordance with section 112(6). Following the spirit of *Donaldson*, the patent office has, on its own, decided to extend the strict statutory construction approach used by the Federal Circuit in *Donaldson*, so as to apply section 112(6) to method claims, something that the Federal Circuit has heretofore not done. Similarly, attempts to sidestep section 112(6) by playing with the language to hide the appearance of a "means plus function" limitation will be shot down. Rather than run from the application of section 112(6), the patent office has chosen to embrace the statute, afford it an expansive role in prosecution, and apply its language liberally.

The patent office has also, as expected, promulgated a shifting or sliding burden of proof system, which it presumably hopes will minimize the work of its examiners. Once the examiner locates prior art meeting the claimed functional recitation exactly, then the burden will generally shift to the applicant to prove non-equivalence. The expectation is in part that the applicant will at a minimum leave a paper trail in the prosecution history that will limit the scope of section 112(6) equivalents both in the patent office, and later in litigation. If the applicant goes to the extreme and presses arguments that indicate that it is not asserting a range of equivalents or even a very limited range, the applicant may be required to amend the claims to insert functions or structures argued to be patentable over the prior art. If the applicant makes non-equivalence arguments inconsistent with the specification, they will be summarily rejected. If the applicant argues for too broad a range of equivalents, the examiner will conclude that any prior art reference which discloses the function performed is equivalent.

To assist the examiner in evaluating equivalents, the examiner is authorized to consider at least four indicia or factors, some of which would appear to be inconsistent with the Federal Circuit's admonition in *Valmont* that doctrine of equivalents considerations, such as the tripartite test of *Graver Tank*, are inappropriate to a section 112(6) analysis.

In short, the patent office guidelines are ushering in new era in which section 112(6) will play a prominent role. This is a role that must be fully appreciated by patent attorneys as they draft specifications, prepare drawings, craft claims, and make arguments during prosecution.