

IMS TECHNOLOGY, INC. V. HAAS AUTOMATION, INC. & KEMCO SALES, INC. V. CONTROL PAPERS Co.

By Eva M. Ogielska

The complexity of patent claim interpretation reflects the delicate balance of interests between the public and the inventor. Interpreting claims too narrowly may unfairly deprive the inventor of his property rights, while overly broad interpretation may negatively affect the public by discouraging technological innovation.¹ The difficulties of claim interpretation are particularly apparent in the judicial construction of means-plus-function claims.² Two recent decisions in the Federal Circuit, *IMS Technology, Inc. v. Haas Automation, Inc.*³ and *Kemco Sales, Inc. v. Control Papers Co.*,⁴ exemplify the unsystematic approach of the Federal Circuit in interpreting means-plus-function claims.

Partly due to the scarcity of legislative guidance, judicial constructions of means-plus-function claims have not been uniform or equitable to the patentee. The resulting ambiguity renders impossible a prospective evaluation of the scope and validity of individual means-plus-function claims. In addition, the present system is inequitable to the patentee as the infringement determination ultimately hinges on the particular standard of construction employed by the court. To insure that patentees are granted the appropriate scope of protection, the courts must implement a uniform set of criteria for construing means-plus-function claims.

This Note advocates the approach taken in *IMS* where the Federal Circuit considered the relative importance of a structure claimed in means-plus-function language to the invention as a whole. More specifically, this Note contends that such a contextual approach would result in a more equitable literal infringement determination since it would simultaneously

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1. See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1531-32. (Fed. Cir. 1995) (Newman, J., concurring).

2. 35 U.S.C. § 112, ¶ 6 (1994). See, e.g., *Dawn Equip. Co. v. Kentucky Farms, Inc.* 140 F.3d 1009 (Fed. Cir. 1998); *Chiuminatta Concrete Concepts, Inc., v. Cardinal Indus., Inc.*, 145 F.3d 1303 (Fed. Cir. 1998); *Valmont Indus., Inc., v. Reinke Mfg. Co.*, 983 F.2d 1039 (Fed. Cir. 1993).

3. 206 F.3d 1422 (Fed. Cir. 2000).

4. 208 F.3d 1352 (Fed. Cir. 2000).

provide more certainty and be sufficiently flexible to protect the property rights of patentees adequately.

I. BACKGROUND

Patent claims delineate the legal bounds of the invention and place competitors on notice regarding potential infringement liability.⁵ The Patent Act does not dictate a particular claim format, unless a patentee elects to utilize "means-plus-function" claims defined in 35 U.S.C. § 112, paragraph 6.⁶ Since certain combination inventions do not readily lend themselves to a structural description, § 112, paragraph 6 provides that the patentee may claim the invention using functional language.⁷

More precisely, means-plus-function claims allow the drafter to claim an element of a combination "as a means or step for performing a specific function without the recital of structure, material, or acts in support thereof."⁸ By allowing the patentee to claim his invention in functional language, means-plus-function claims are intended to "grant the [patentee] . . . a fair scope that is not dependent on a catalogue of alternative embodiments in the specification."⁹ The statute provides that such a claim does not cover every possible means of accomplishing a particular function.¹⁰ Rather, the scope of the claim is limited to the "corresponding structure, material, or acts described in the specification and equivalents

5. Full disclosure requires that a patent applicant "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, ¶ 2 (1994). In exchange for full disclosure, the inventor obtains the right to prohibit others from making, using, selling, offering for sale, or importing a patented invention for a period of twenty years from the date the patent is filed. *Id.* § 271(a).

6. 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.

Id. § 112, ¶ 6.

7. Congress enacted § 112, paragraph 6 in 1952 to overrule an earlier Supreme Court decision in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946) (invalidating means-plus-function claims because of the worry that coverage would be overbroad).

8. 35 U.S.C. § 112, ¶ 6 (1994). As an example, a patentee may claim "a means for toasting bread," rather than limiting himself to claiming a toaster.

9. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558, 1562 (Fed. Cir. 1986).

10. *See Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1042 (Fed. Cir. 1993).

thereof.”¹¹ Lack of corresponding structure in the specification renders the claim indefinite under § 112, paragraph 2.¹²

Because § 112, paragraph 6 includes the phrase, “and its equivalents,” means-plus-function claim elements are construed differently from claims that recite structure. Literal infringement of a structural claim requires that the accused device embody all of elements recited in the patent claim.¹³ In the case of structural claims, all equivalence determinations are reserved for an analysis of nonliteral infringement under the doctrine of equivalents.¹⁴ Literal infringement of a means-plus-function claim requires identity between the function recited in the claim and the function performed by the accused device.¹⁵ Furthermore, the accused structure must be identical or equivalent to the corresponding structure disclosed in the specification.¹⁶ The two structures are equivalent if the differences between the disclosed structure and the structure in the accused device are insubstantial¹⁷ and add “nothing of significance to the structure, material, or acts disclosed in the patent specification.”¹⁸ The examination of equivalence under § 112, paragraph 6 involves the “application of the doctrine of equivalents . . . in a restrictive role.”¹⁹

Although seemingly innocuous, judicial interpretations of § 112, paragraph 6 are fraught with confusion even though its purpose “was to provide clear parameters within which means-plus-function claims could be drawn and sensibly construed.”²⁰ A determination of infringement may arise under § 112, paragraph 6 *or* the doctrine of equivalents,²¹ although

11. 35 U.S.C. § 112, ¶ 6. *See generally* Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1582 (Fed. Cir. 1996).

12. *See In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc).

13. ROBERT P. MERGES, ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 255 (2d Ed. 2000).

14. *See, e.g.*, Graver Tank & Mfg. Co. v. Linde Air Products Co. 339 U.S. 605 (1950).

15. *See* Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1320 (Fed. Cir. 1999); Valmont Indus., Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed. Cir. 1993); Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 934 (Fed. Cir. 1987) (en banc).

16. *See Al-Site Corp.*, 174 F.3d at 1320; *Valmont Indus.*, 983 F.2d at 1042; *Pennwalt Corp.*, 833 F.2d at 934.

17. *See* Chiuminatta Concrete Concepts, Inc., v. Cardinal Indus., Inc., 145 F.3d 1303, 1309 (Fed. Cir. 1998).

18. *Valmont Indus.*, 983 F.2d at 1043.

19. Warner-Jenkinson Co. v. Hilton Davis Chem. Co. 520 U.S. 17, 28 (1997).

20. Dawn Equip. Co. v. Kentucky Farms, Inc., 140 F.3d 1009, 1021 (Fed. Cir. 1998).

21. Whereas § 112, paragraph 6 is a statutory determination that forms the basis of literal infringement, the doctrine of equivalents is an equitable doctrine which was judi-

the doctrine of equivalents may only be invoked once there is a finding of no literal infringement.²² The goal of the doctrine of equivalents is to broaden the scope of protection beyond what is afforded by the patent claims by an additional independent inquiry into whether the accused device is equivalent to the claimed invention.²³ The inclusion of an equivalence determination within literal infringement complicates the application of the doctrine of equivalents, because any analysis of literal infringement will necessarily involve an assessment of both identical and equivalent structures. Given the seemingly duplicative determination of equivalence, the application of the doctrine of equivalents appears to be redundant in the context of means-plus-function claims. In *D.M.I., Inc. v. Deere & Co.*,²⁴ the Federal Circuit attempted to differentiate between § 112, paragraph 6 and the doctrine of equivalents:

In applying the doctrine of equivalents, the fact finder must determine the range of equivalents to which the claimed invention is entitled, in light of the prosecution history, the pioneer-non-pioneer status of the invention, and the prior art. In applying the 'means plus function' paragraph of § 112 however, the sole question is whether the single means in the accused device which performs the function stated in the claim is the same as or equivalent of the corresponding structure described in the patentees specification as performing that function.²⁵

In practice, both measures of equivalence involve a similar analysis of insubstantial differences between the accused device and the asserted claim.²⁶ If the literal scope of means-plus-function claims already includes equivalent structures, it is unclear what room, if any, is left for applying the doctrine of equivalents.

cially established to prevent competitors from undermining the scope of an existing patent by developing devices that insubstantially differ from the claimed invention. *See, e.g.,* Wayne Kennard, *Judicially Created Doctrine Of Equivalents And Equivalents Under 35 U.S.C. § 112, Sixth Paragraph*, 532 PLI/PAT 219 (1998).

22. *See generally id.*

23. The doctrine of equivalents provides that "a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements in the patented invention." *Warner-Jenkinson*, 520 U.S. at 21.

24. 755 F.2d 1570 (Fed. Cir. 1985).

25. *Id.* at 1575.

26. *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1310 (Fed. Cir. 1998).

The Federal Circuit has endorsed the application of a modified function-way-result test²⁷ to determine equivalence under § 112, paragraph 6.²⁸ Since § 112, paragraph 6 equivalence requires that the function of the element in the accused device be identical to the claim recitation, the function-way-result test compares the way the function is accomplished and the result achieved.²⁹ Because the “way” and “result” prongs are the same under the § 112, paragraph 6 inquiry and the doctrine of equivalents, once an accused device fails either prong under § 112, paragraph 6 inquiry, the patentee cannot ask for the same analysis under the doctrine of equivalents. In other words, because “an element of a device cannot be ‘not equivalent’ and equivalent to the same structure,”³⁰ the Federal Circuit eliminated the option of litigating patent infringement under the doctrine of equivalents if the accused device performs the identical function in a substantially different way or if it achieves a substantially different result.³¹

II. CASE SUMMARIES

In *IMS Technologies v. Haas*³² and *Kemco Sales v. Control Papers*,³³ the Federal Circuit addressed the issue of literal claim scope under § 112, paragraph 6 and the scope of equivalent structures. In addition to the modified function-way-result test, the court in *IMS* called for an analysis of the relative importance of the means clause to the invention as a whole.

27. To satisfy the “function-way-result” test the accused device must perform substantially the same function, in substantially the same way, to achieve substantially the same result as each element in the patent claim. *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950).

28. *Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1016 (Fed. Cir. 1998).

29. *Id.*

30. *Chiuminatta Concrete Concepts*, 145 F.3d at 1311.

31. *Id.* If a patentee is able to invoke the function-way-result once for the determination of structural equivalence and again for the doctrine of equivalents determination, the patentee effectively would get “two bites at the apple.” *Id.* at 1311.

In narrow circumstances the Federal Circuit does provide an exception to its pronouncement foreclosing the option of litigating under the doctrine of equivalents. In *Chiuminatta*, the Federal Circuit held that if the accused device employed technology that was unavailable at the time the patent was issued, a finding of no literal infringement under § 112, paragraph 6 did not preclude the application of the doctrine of equivalents. *Id.* at 1310. In *Kraft Foods, Inc., v. International Trading Co.*, 203 F.3d 1362 (Fed. Cir. 2000), the Federal Circuit clarified that the *Chiuminatta* holding applied *only* to means-plus-function claims.

32. 206 F.3d 1422 (Fed. Cir. 2000).

33. 208 F.3d 1352 (Fed. Cir. 2000).

This contextual approach to means-plus-function claims allows the court to vary the range of equivalent structures depending on the relative importance of the means clause to the invention as a whole. If the means-plus-function element is at the point of novelty, the range of permissible equivalents is considerably narrower. If, however, the means-plus-function element is relatively insignificant to the invention, the range of permissible equivalents is broad. The *Kemco* opinion advocates a narrower view of § 112, paragraph 6 equivalence and therefore indirectly supports a broader role for the doctrine of equivalents. Together, these decisions illustrate the tensions between the doctrine of equivalents and § 112, paragraph 6, as well as the inconsistent judicial approaches to interpreting means-plus-function claims.

A. *IMS Technology, Inc. v. Haas Automation, Inc.*

IMS Technology Inc. (“IMS”) sued Haas Automation Inc. (“Haas”) for infringement of U.S. Patent 4,377,754 (“the ’754 patent”), which used means-plus-function language to claim a control apparatus for a machine tool.³⁴ The Federal Circuit reversed the district court’s grant of summary judgment for the defendant and remanded the case, on the grounds that the district court erred in its claim construction by failing to consider the relative importance of the means clause to the invention as a whole.³⁵

1. Factual Background

The ’754 patent claims a control apparatus that enables the operator of a machine tool, used to cut or remove material from an object, to interactively control the operations of the tool on the shop floor.³⁶ The numerical control apparatus claimed in the ’754 patent enables the operator to create a program by using a keyboard to respond to a series of prompts displayed on a screen.³⁷ The program is subsequently converted to electrical signals that ultimately control the movement of the machine tool.³⁸ During its creation, the program is temporarily stored in random access memory (“RAM”) and may be stored permanently on a tape cassette,³⁹ or in an unspecified storage format.⁴⁰

34. *IMS Tech., Inc. v. Haas Automation*, 206 F.3d 1422, 1425 (Fed. Cir. 2000).

35. *Id.* at 1425.

36. *Id.* at 1426. Prior to this invention the operator was unable to interactively control the machine tool, and the control program for the machine tool required a programmer to input the relevant coordinates prior to the commencement of operations. *Id.*

37. *Id.* at 1426.

38. *Id.*

39. *Id.*

40. *Id.*

The defendant, Haas, manufactured machine tools with interactive programming capability.⁴¹ Haas' control system used either a floppy disk drive or an RS-232 data port for data storage.⁴² IMS filed suit against Haas alleging that the Haas control system infringed claims 1 and 7 of the '754 patent.⁴³

2. *The Federal Circuit Decision*

On appeal the Federal Circuit reviewed de novo whether a floppy disk drive could be an equivalent structure to a cassette recorder.⁴⁴ The Federal Circuit held that the district court erred in its interpretation of the term "interface means," which if properly construed encompassed a tape cassette recorder and its equivalents.⁴⁵

The Federal Circuit determined that the "interface means" was subject to § 112, paragraph 6, and that the means clause recited two functions.⁴⁶ One function was "recording" a control program and parameters from al-

41. *Id.*

42. *Id.* at 1426. The RS-232 data port may be used to connect the numerical control to an external storage device allowing the program to be permanently stored.

43. *Id.* The pertinent portion of claim 1 recites: "programmable microcomputer control apparatus for controlling the relative motion between a tool and a workpiece comprising: . . . interface means for transferring a control program and control parameters from an external medium into said alterable memory and for recording the control parameter contents of said memory onto an external medium; . . ." *Id.* at 1427. Based on its construction of "interface means," the district court ruled that a tape cassette was not equivalent to a floppy disk drive, and granted summary judgment of non-infringement. *Id.* at 1428. IMS appealed. *Id.*

44. *Id.* at 1437.

45. *Id.* According to the Federal Circuit, the district court also erred in its construction of the "data block" limitation by construing the claim too narrowly rather than relying on the ordinary meaning of the phrase. *Id.* at 1437. The Federal Circuit concurred with the district court that the claim element at issue was subject to a § 112, paragraph 6 construction. The court noted that § 112, paragraph 6

does not limit all terms in a means-plus-function or step-plus-function clause to what is disclosed in the written description and the equivalents thereof; § 112, paragraph 6 applies only to interpretation of the means or step that performs a recited function when a claim recites insufficient structure or acts for performing the function. . . . The 'data block' is not the means that causes the sequential display and is therefore not subject to construction under § 112, paragraph 6.

Id. at 1432. Thus, the court determined that, in the absence of ambiguity in the claim language or contradictory statements in the written description or prosecution history, the term data block should be interpreted according to its ordinary meaning. Given the district court's errors in claim construction, the summary judgment of non-infringement was vacated. *Id.*

46. *Id.* at 1430.

terable memory into an external medium. The other was "transferring" a control program and parameters from an external medium into alterable memory.⁴⁷ According to the court, the corresponding structures disclosed in the written description were, respectively, the peripheral interface adapter ("PIA") and the tape recorder.⁴⁸

To support a finding of literal infringement under § 112, paragraph 6, the accused Haas device must perform a function identical to the "interface means" using an identical or equivalent structure.⁴⁹ The court found that the floppy disk employed by Haas performed transfer and recording functions identical to those performed by the tape cassette recorder employed by IMS.⁵⁰ Given that a tape cassette recorder is clearly not an identical structure to a floppy disk, the court considered whether the two structures were equivalent under § 112, paragraph 6,⁵¹ taking into account the substantiality of the differences in the context of the claimed invention.⁵²

Writing for the panel, Judge Plager stated that "the context of the invention should be considered when performing a § 112, paragraph 6 equivalence analysis just as it is in a doctrine of equivalents determination."⁵³ Judge Plager further explained that when the particular structure corresponding to a means-plus-function claim element is of little consequence to the claimed invention, the range of permissible equivalents might be broader than in instances when the corresponding structure is an integral aspect of the claimed invention.⁵⁴ Thus, two structures that would be considered equivalent in one set of circumstances might not be considered equivalent in another.⁵⁵ In its analysis of whether a floppy disk drive was equivalent to a tape cassette recorder, the court considered the relative importance of the structure to the whole invention.⁵⁶ The court concluded that the physical characteristics of the "interface means" were not impor-

47. *Id.*

48. *Id.* at 1432. Both the PIA and the tape recorder are necessary to record and transfer the control program and parameters from the external medium to the alterable memory. These two functions together compose the claimed "interface means." *Id.* at 1431.

49. *Id.* at 1435.

50. *Id.*

51. *Id.*

52. *Id.* at 1436.

53. *Id.* at 1436. This analysis was partially based on an earlier Federal Circuit decision, where the court established equivalence under the doctrine of equivalents based on a similar analysis. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558 (Fed. Cir. 1986).

54. *IMS Tech.*, 206 F.3d at 1437.

55. *Id.* at 1436.

56. *Id.* at 1436-37.

tant to the invention as a whole, and therefore the range of permissible equivalents under § 112, paragraph 6 was broad.⁵⁷

To determine whether the differences between the tape cassette recorder and the floppy disk drive were substantial “in light of the role played by the ‘interface means’ in the claimed invention” the court suggested the condensed function-way-result test.⁵⁸ Since issues of material fact existed, the Federal Circuit vacated the district court’s grant of summary judgment and remanded the case.⁵⁹

B. Kemco Sales v. Control Papers Co.

Plaintiff Kemco Sales (“Kemco”) alleged that Control Papers (“Control”) infringed U.S. Patent No. 5,405,197 (“the ’197 patent”).⁶⁰ In its analysis of equivalence under § 112, paragraph 6, the Federal Circuit did not consider the relative importance of the means clause to the invention as a whole and affirmed the district court’s grant of summary judgment for the defendant.

1. Factual Background

The ’197 patent discloses a plastic, tamper-resistant security envelope, which allows the user to readily determine whether the integrity of the seal was compromised.⁶¹ The envelope employs two seals, one to seal the contents within the envelope and the other to serve as an indicator for any tampering.⁶² The disputed claim⁶³ was phrased in means-plus-function format and therefore subject to § 112, paragraph 6. The disclosed means for sealing the envelope is a plastic flap that folds over the opening and is subsequently secured to the outside panel.⁶⁴ The accused device similarly employs a dual sealing mechanism, but it closes by a dual-lip structure,

57. *Id.* at 1437.

58. *Id.*

59. *Id.*

60. *Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1354 (Fed. Cir. 2000).

61. *Id.* at 1355.

62. *Id.*

63. The pertinent portion of the disputed claim states: “A tamper-evident sealing system for an envelope made at partially of plastic material comprising: . . . [a] plastic envelope closing means secured to the plastic envelope material to close the opening and to form a closed pocket, the closing means having at least one traverse edge . . .” *Id.* at 1355.

64. *Id.* at 1356. In the preferred embodiment the first sealing means utilizes an adhesive tape located on an extended flap that is folded over to close the envelope and secure the contents. The second sealing means similarly employs an adhesive tape on an extended flap and also functions by a fold over mechanism. *Id.*

which seals by virtue of an internal adhesive.⁶⁵ The accused device does not employ a fold-over flap, but rather requires that the edges of the envelope be pressed against one another to accomplish the sealing function.⁶⁶

2. *The Federal Circuit Decision*

In determining whether the fold-over flap and the dual lip seals were § 112, paragraph 6 equivalents, the Federal Circuit applied the function-way-result test.⁶⁷ The Federal Circuit affirmed the district court's conclusion that the corresponding structure was a fold-over flap, which was secured to the outside panels of the envelope.⁶⁸ The dual lip seal of the accused device performed the same function recited in the means clause, namely the prevention of exit or entry once the envelope was sealed.⁶⁹ The Federal Circuit held that the dual-lip technology closed the envelope in a substantially different way from the disclosed invention and achieved a substantially different result.⁷⁰ Since the "way" and the "result" were substantially different, the Federal Circuit concluded that the accused device did not literally infringe the '197 patent. Consideration of the doctrine of equivalents was precluded because the accused device operated in a substantially different way and achieved a substantially different result.⁷¹ The Federal Circuit did not consider the substantiality of the differences in the context of the claimed invention.

III. DISCUSSION

Historically, courts have vacillated between an extremely generous interpretation of means clauses that focuses almost exclusively on the similarity in function between the accused device and the claimed invention,⁷² and an extremely rigid approach that compares the physical similarity of the disclosed and the accused structures.⁷³ *IMS*⁷⁴ and *Kemco*⁷⁵ exemplify

65. *Id.* at 1357-58. As in the claimed invention the first sealing means is aimed at securing the contents of the envelope, while the second sealing means provides a mechanism to indicate any evidence of tampering. *Id.*

66. *Id.*

67. *Id.* at 1364.

68. *Id.* at 1361. The construction adopted by the court was based on the written description and the provided drawings. *Id.* at 1362.

69. *Id.* at 1361.

70. *Id.* at 1364-65.

71. *Id.*

72. *See, e.g.,* *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259 (Fed. Cir. 1999); *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308 (Fed. Cir. 1999).

73. *See, e.g.,* *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259 (Fed. Cir. 1999) (Lourie, J., dissenting); *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533 (Fed. Cir. 1991).

the incongruous judicial approaches to the interpretation of means-plus-function clauses. Although *Kemco* represents the current judicial trend—namely a rigid construction of means-plus-function claims permitting only a narrow range of acceptable equivalents—*IMS* indicates that the Federal Circuit continues to vacillate in its approach to interpreting means-plus-function claims.

The inconsistent approaches to construction of means-plus-function claims have made any prospective assessment of claim scope nearly impossible. Inventors are unable to evaluate the breadth of existing patent rights and are forced to rely on federal litigation for an assessment of patent scope. Innovation is hampered because competitors cannot reliably assess the boundaries of existing patents. As a result, a competitor may decide not to develop a cheaper substitute because she cannot ascertain whether her product will infringe an existing patent. Patentees and potential competitors both deserve a more uniform rule for determining the scope of means-plus-function claims.

In establishing a more consistent rule of claim construction, the Federal Circuit must consider which rule would be most equitable to both the patentees and potential competitors. If maximizing certainty were the only issue, the simplest approach would be to construe claims extremely narrowly and limit the patentee to the literal language of the claims. This approach is, however, too inflexible as it allows a competitor to escape liability by incorporating seemingly trivial alterations into a claimed invention.⁷⁶ An equitable approach must include some flexibility to allow the courts to fairly adjudicate the case at bar.

The most equitable approach is a middle path in which the court evaluates the scope of a means-plus-function claim in light of an explicit determination of the importance of the means clause to the invention as a whole.⁷⁷ Judge Rich has advocated this contextual approach to means clauses. The contextual approach is most equitable to the patentee since it guards against competitors escaping liability by implementing trivial variations to insignificant aspects of the claimed invention.

74. 206 F.3d 1422 (Fed. Cir. 2000).

75. 208 F.3d 1352 (Fed. Cir. 2000).

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

77. *Baltimore Therapeutic Equip. v. Loredian Biomedical, Inc.*, 30 U.S.P.Q.2d 1672, 1677 (Fed. Cir. 1994) (Rich, J., concurring).

A. The Rigid Approach

In *Laitram v. Rexnord*,⁷⁸ the Federal Circuit construed § 112, paragraph 6 to mean that for a finding of literal infringement the “patentee must prove . . . that the means in the accused device is the structural equivalent to the means described in the specification.”⁷⁹ The court held that the accused structure was not equivalent to the disclosed structure because, although the two performed the same function and were “similar,” they were not “structurally equivalent.”⁸⁰ Structural equivalence requires a component by component comparison of the physical attributes of the accused and the disclosed structures.⁸¹ According to Judge Lourie, an assessment of “any significant differences in structural details” requires a deconstruction of both structures and an “analysis of their component parts.”⁸² This rigid approach confines means-plus-function claims to an extremely narrow scope and renders the patent rights relatively worthless.

Kemco exemplifies the inequity of the rigid approach. The competitor evaded infringement by making a relatively insignificant structural alteration to the sealing mechanism disclosed by the patentee. The crucial aspect of the *Kemco* invention is the use of two independent sealing mechanisms to create a tamper resistant envelope. The precise means by which the envelope is sealed—via a dual lip mechanism or a fold over flap—is a less vital aspect of the invention. The application of a rigid approach to claim construction is particularly bothersome in instances such as *Kemco* where, because of a narrow claim construction, a trivial structural substitution is sufficient to avoid infringement.

In the context of means-plus-function claims, a rigid approach to claim construction principally discriminates against inventions whose components are most easily described in functional language. In order to avoid infringement, a patentee is forced to disclose an exhaustive list of variant structures for every functionally claimed component regardless of the relative importance of that component to the invention as a whole.

78. 939 F.2d 1533.

79. *Id.* at 1536.

80. *Id.* The claimed invention was “a modular plastic conveyor belt . . . which allows smooth transfer of containers to and from the head and tail ends of a conveyor via a transfer comb.” *Id.* at 1534-35. The Federal Circuit held that although the accused device performed the same function, *Laitram*’s V-shaped molded plastic structure was not an equivalent to an H-shaped structure employed by the defendant. *Id.* at 1536.

81. *Odetics Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1277 (Fed. Cir. 1999) (Lourie, J., dissenting).

82. *Id.*

B. The Broad Approach

The contrary approach to the narrow evaluation of means-plus-function claims focuses almost exclusively on the identity between the claimed function and the function performed by the accused device. In *Odetics v. Storage Technology Corp.*,⁸³ the Federal Circuit disparaged the rigid approach, as confusing individual structural components with the concept of claim limitations and as having no basis in the law.⁸⁴ Instead, the court chose to focus on the identity of function between the accused and disclosed structure.⁸⁵ The invention was a tape cassette handling system for library data storage, and the disputed claim recited a “rotary means.” The patent disclosed as a corresponding structure “a set of tape holders or bins, a rod providing the axes of rotation, and a gear capable of receiving a force sufficient to cause the structure to accomplish the claimed ‘rotary’ function.”⁸⁶ The court ruled that the “bin array” of the accused device was equivalent to the “rotary means” employed by the patentee because both structures exerted force against the teeth of a gear to effectively turn a bin about a rod.⁸⁷ Since both structures exerted force to turn a bin, the court determined that the accused and disclosed structures were equivalent for the purpose of a literal infringement determination.⁸⁸ The court did not consider the fact that in one case the device utilized a pin system, whereas in the other the device relied on a gear tooth mechanism.⁸⁹

Although this broad approach affords the patentee more flexibility, it extends patent rights beyond a reasonable scope. Since “almost by definition, two structures that perform the same function may be substituted for one another,”⁹⁰ a means-plus-function claim element would necessarily read onto any and all structures that accomplished the recited function. As a result, an inventor would be able to unfairly expand the scope of his patent rights beyond the disclosed invention. Because the *Odetics* approach neglects to compare the structures on any level, it runs the risk of permitting overly broad patent rights.

83. 185 F.3d 1259.

84. *Id.* at 1268.

85. *Id.* at 1269.

86. *Id.* at 1265.

87. *Id.* at 1269-70.

88. *Id.* at 1270-72.

89. *Id.* at 1277 (Lourie, J., dissenting).

90. *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1309 (Fed. Cir. 1998).

C. The Contextual Compromise

Given the inequities generated by both the rigid and the broad approaches, the courts ought to adopt a compromise that permits the required flexibility but does not result in overly generous patent protection. The incompatible interpretations of § 112, paragraph 6 compelled Judge Rich to expound on equivalence in his concurring opinion in *Baltimore Therapeutic Equipment v. Loredian Biomedical*.⁹¹ Noting that the statutory phrase “and equivalents thereof” is not in any way qualified, Judge Rich opined that the phrase has a broad but not unlimited meaning.⁹² According to Judge Rich:

[H]ow far beyond what is disclosed a court may expand the meaning of a means clause . . . [is] dependent on various factors taken into consideration in construing claims generally such as the pioneering status of the invention as a whole, importance of the recited ‘means’ to the invention as a whole, and the like.⁹³

Effectively, Judge Rich advocated a wider range of permissible equivalents when the claimed means is not at the point of novelty. If the means clause describes a function that is at the point of novelty, the range of permissible equivalents should be narrower. Judge Rich conceded that the accused device must perform the identical function as named in the means clause, but he disagreed that the structure required a structural equivalent.⁹⁴ According to Judge Rich, an “equivalent structure” is conceptually different from a “structural equivalent.” Judge Rich considered “structural equivalence” to be a narrow application of the statutory language that needlessly focused the comparison on physical attributes. Judge Rich advocated a consideration of the invention as a whole in any “equivalence” determination: “[e]quivalence of the[] structures . . . is not the determining factor but rather how they function in the particular environment of the claimed combination.”⁹⁵

D. The Contextual Approach Yielded an Equitable Result in *IMS v. Haas*

The decision in *IMS* applied the contextual approach advocated by Judge Rich. In *IMS*, the court began its § 112, paragraph 6 claim construction analysis by determining the importance of the means clause to the in-

91. 30 U.S.P.Q.2d 1672, 1677 (Fed. Cir. 1994) (Rich, J., concurring).

92. *Id.*

93. *Id.*

94. *Id.*

95. *Id.* at 1678.

vention as a whole. The court acknowledged that given the “similarity of the tests of equivalence under § 112, paragraph 6 and the doctrine of equivalents, the context of the invention should be considered when performing a § 112, paragraph 6 equivalence analysis just as it is in the doctrine of equivalents.”⁹⁶ Concluding that the means clause was of little importance to the invention as a whole, the court permitted a broad range of equivalents. After determining the relative importance of the means clause, the court remanded the case with a suggestion that the modified function-way-result test be employed to find the appropriate range of equivalents.⁹⁷ The contextual approach employed in *IMS* is unlike most previous Federal Circuit decisions, which did not consider whether the means-plus-function claim element was important to the invention as a whole.⁹⁸

The contextual approach advocated by Judge Rich affords the patentee and the public more certainty, and results in a more equitable determination of patent scope than would be permissible under the rigid approach. The contextual approach, thus, represents an optimal compromise between certainty and equity in the construction of means-plus-function claims. In *IMS*, the court acknowledged that in certain instances applying the contextual approach would result “in a finding of equivalence under § 112, paragraph 6 even though the two structures arguably would not be considered equivalent structures in other contexts, e.g., if performing functions other than the claimed function.”⁹⁹ Unless the invention itself was a tape cassette recorder, it is difficult to imagine a situation where a floppy disk drive would not be considered equivalent to a tape cassette recorder. The potential existence of such a situation however, does not jeopardize the validity of the contextual approach to claim construction. If a means-plus-function claim is used to describe an aspect of the invention that is at the

96. *IMS Tech. v. Haas Automation*, 206 F.3d 1422, 1436 (Fed. Cir. 2000). In support of its contention the court cited both an earlier § 112, paragraph 6 decision, *Texas Instruments, Inc. v. U.S. International Trade Commission*, 805 F.2d 1558, 1563 (Fed. Cir. 1986), Judge Rich’s concurrence in *Baltimore Therapeutic Equipment*, 30 U.S.P.Q.2d at 1677 (Rich, J., concurring), and the recent Supreme Court opinion in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40 (1997), which discusses the importance of a comparison to the invention as a whole in the context of the doctrine of equivalents.

97. *IMS Tech. v. Haas Automation*, 206 F.3d 1422, 1436-1437 (Fed. Cir. 2000).

98. See, e.g., *Dawn Equipment Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009 (Fed. Cir. 1998); *Chiuminata Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303 (Fed. Cir. 1998); *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039 (Fed. Cir. 1993).

99. *IMS Tech.*, 206 F.3d at 1436 (citing *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1269-71 (Fed. Cir. 1999)).

point of novelty, an equitable infringement determination may require that two structures which may have been considered equivalent in a prior context would no longer be considered equivalent. This possibility does not result in uncertainty because the novel aspect of any invention is readily ascertainable.

Not considering the context may unfairly limit the scope of means-plus-function claims. In the absence of the contextual approach, a competitor may implement seemingly trivial changes and successfully escape infringement liability based on a technicality. For instance, if the Federal Circuit in *IMS* had not considered the relative importance of the “interface means,” Haas would have avoided infringement by making a trivial substitution of one well-known recording means for another. If the court had applied the usual rigid approach, the accused device would have been held noninfringing because a floppy disk drive is not a ‘structural equivalent’ of a cassette recorder. A physical comparison of the two structures reveals that their individual components are quite different; the tape cassette recorder uses a spooling tape, while the floppy disk drive uses a spinning magnetic disk. Although the accused device would most likely have been held infringing if the court had elected the broad approach, an excessive focus on function would necessarily lead to overly broad patent rights. The patentee’s claim would necessarily read onto all structures that perform the recited function. While the broad approach would not yield an absurd result in the context of the *IMS* invention, this approach degenerates into inequity when the functional claim element is at the point of novelty.

E. The Court Should Have Adopted the Contextual Approach in *Kemco Sales v. Control Papers*

In *Kemco*, the Federal Circuit did not examine the importance of the means clause to the invention as a whole.¹⁰⁰ In order to determine whether the accused structure was a § 112, paragraph 6 equivalent, the court simply employed the modified version of the function-way-result test.¹⁰¹ The *Kemco* court acknowledged that the ultimate determination was whether the differences are “insubstantial” and that “[e]quivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum.”¹⁰² Nonetheless, the court chose to strictly apply the modified function-way-result test, and the analysis culminated in a finding

100. *Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1364 (Fed. Cir. 2000).

101. *Id.*

102. *Id.* at 1364 n.6. (citing *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605 (1950)).

of no literal infringement.¹⁰³ Although the court recognized that the equivalence determination ought to be flexible, it did not consider the importance of the means clause to the invention as a whole, which would have introduced flexibility.¹⁰⁴

In *Kemco*, the disputed means clause, the “closing means” for an envelope, was not an integral aspect of the invention and should have received a broader range of permissible equivalents. If the court had adopted the contextual approach, a finding of infringement would have been more likely. The novel aspect of the invention is the use of two sealing means to allow for tamper-evident sealing. Whether the envelope is sealed via a dual lip mechanism or a fold over flap is a less vital aspect of the invention.

IV. CONCLUSION

IMS Technology, Inc., v. Haas Automation, Inc. and Kemco Sales, Inc. v. Control Papers Co., illustrate the Federal Circuit’s nonuniform standards for evaluating the breadth of means-plus-function claims. In *IMS*, the court chose to base its determination of equivalence on the relative importance of the means clause to the invention as a whole. In *Kemco*, the court did not even mention this approach and instead analyzed the claims solely by applying the modified function-way-result test. In both cases, the ultimate infringement determination resulted from the particular approach employed by the court. The Federal Circuit must adopt a more consistent approach to claim construction in order to enable prospective evaluations of claim scope. But certainty in the adjudication of functional claims must not be achieved by abandoning equity. A rigid approach to construing means-plus-function claims would yield greater certainty but would not be sufficiently flexible to adequately protect patentees. A broad approach would provide ample flexibility but, could result in nonsensically broad patent claims. If the courts adopt the contextual approach as the standard methodology, a more certain and equitable determination of the appropriate scope of protection for a given means clause will be possible.

103. *Id.* at 1364.

104. *Id.*

