United States District Court,
D. Delaware.

STAIRMASTER SPORTS/MEDICAL PRODUCTS, INC., a Delaware corporation,
Plaintiff.
v.
GROUPE PROCYCLE, INC., a Canadian corporation, and Procycle U.S.A., Inc., a Delaware corporation,
Defendants.

No. Civ.A. 97-396 MMS

May 20, 1998.

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MEMORANDUM OPINION

SCHWARTZ**, Senior J.**

I. Introduction

StairMaster Sports/Medical Products, Inc. ("StairMaster") filed a complaint against Group Procycle, Inc. and Procycle U.S.A., Inc. (collectively "Procycle"), alleging infringement of its United States Reissue Patent No. Re. 34,959 (the " '959 Patent"), entitled "Stair Climbing Exercise Apparatus". *See* Docket Item ("D.I.") 54 at para. 16. Procycle answered StairMaster's complaint and brought a counterclaim for a declaratory judgment that the '959 Patent is invalid, not infringed by Procycle, and unenforceable. *See* D.I. 63 at para. 23. Jurisdiction is proper under 28 U.S.C. s.s. 1331 and 1338(a).

Pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), the parties briefed and argued the proper construction to be given certain disputed claim language of the '959 Patent. The Court's construction of this disputed claim language follows.

II. Factual Background

Both StairMaster and Procycle are in the business of designing, manufacturing, marketing and selling exercise products, including the stair-climbing devices or "steppers" that are at issue in this case. StairMaster first introduced its product, the 4000-PT stair-climbing device, in 1986. StairMaster alleges both Procycle's Quantum LS and LS2 and Executive LS and LS2 stair-climbing devices infringe on StairMaster's

'959 Patent. FN1 Specifically, StairMaster asserts the Quantum steppers infringe claims 1, 5, 6, 9, and 10 of the '959 Patent and the Executive steppers infringe claims 1, 5, 6, 7, 8, 9, 10, and 11 of the '959 Patent. FN2

FN1. The initial patent, United State Patent No. 4,708,338 (" '338 Patent"), issued on November 24, 1987 to the inventor of the 4000-PT, Lanny L. Potts ("Potts"). Potts then assigned the '338 Patent to StairMaster. Although Potts, as the owner of patent, initiated the reissue process, he died shortly after the process commenced. StairMaster, the assignee, carried on the reissuance process, which led to the issuance of the '959 Patent on May 30, 1995. StairMaster is now the assignee and sole owner of the '959 Patent. *See* D.I. 54 at para. 9.

FN2. Since a device that does not infringe an independent claim cannot infringe a dependent claim, *see* Eltech Sys. Corp. v. PPG Indus. Inc., 710 F.Supp. 622, 634 n. 10 (W.D.La.1988), *aff'd* 903 F.2d 805 (Fed.Cir.1990), the Court will only address independent claims 1, 7, 9, and 11 in its analysis of the claim language.

Although the Court's objective in *Markman* construction is to construe the claims of the patent, the Court furnishes the following description of StairMaster's patented invention in order to provide context for the ensuing claim construction. FN3 StairMaster's 4000-PT stepper consists of a frame, a base and two pedals designed to be stepped on by a person exercising. These pedals are independent and a different range of motion may be utilized with each pedal. Each pedal is connected to the end of a pedal arm, and the other end of the pedal arm pivots about a fixed location with respect to the frame at a location in front of the pedals. Because of the pivot location, movement is backwards and downwards during use.

FN3. The Court will describe only StairMaster's 4000-PT because it is improper to evaluate the accused device during claim construction. *See* Young Dental Mfg. Co., Inc. v. Q3 Special Products, Inc., 112 F.3d 1137, 1141 (Fed.Cir.1997) (citations omitted); Jurgens v.. McKasy, 927 F.2d 1552, 1560 (Fed.Cir.1991) ("[C]laim is construed without regard to the accused product."). That being said, the particular accused product is kept in mind, for it is efficient to focus on the construction of only the disputed elements of the claims. *See* Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F.2d 1565, 1580 (Fed.Cir.1991).

The 4000-PT stepper has a chain connected to approximately the middle of each pedal arm. This chain engages a sprocket located at approximately the same location. The oscillating motion of the pedal arms is converted by the sprocket to rotary motion. This sprocket is mounted on a drive shaft by a one way clutch that transmits rotary motion to a second sprocket in only one direction, while it "free runs" in the opposite direction. The first sprocket is also attached to a spring which causes the pedals to be in the upper position when at rest.

The second sprocket has another chain attached to it. Attached to the opposite end of this second chain is a third sprocket which forms the transmission input for a transmission whose function is to transmit rotary motion, while at the same time, increasing rotational speed. The output of this transmission is connected to a belt and pulley mechanism, which in turn is attached to an alternator/brake. The alternator/brake provides resistance to the rotation of the drive shaft, and that resistance is imparted to the pedal arms through the same chain that is used to turn the drive shaft. The alternator/brake is also attached to a load resistor, which is in turn controlled and monitored by a computer control panel.

The parties' dispute centers around the proper construction of the following language found in claims 1, 7, 9, and 11 of the '959 Patent: "drive system assembly means," "drive system assembly," "drive means," different phrases employing various forms of the word "engage," "speed increasing transmission means," and "speed increasing transmission." FN4 Each of these phrases will be considered separately and construed according to the now-familiar principles of claim construction which are set forth below.

FN4. During the *Markman* hearing, StairMaster conceded there need not be claim construction on the previously-disputed phrase "less than 90 degrees" found in Claim 9 of the '959 Patent. *See* D.I. 117 at 13 ("There's no claim construction on the [the less than 90 degrees] term ... on the angle measurement.").

Additionally, StairMaster has agreed to accept Procycle's definition of a "continuous chain" or "continuous belt" found in Claim 1 of the '959 Patent as "a loop which has no end."

III. Applicable Law for Claim Construction

Patent infringement actions are composed of two phases: "First, the claim language must be properly construed to determine its scope and meaning. Second, the claim as properly construed must be compared to the accused device or process." Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1998 WL 25696 at *3 (Fed.Cir. January 27, 1998) (quoting Carroll Touch, Inc. v. Electro Mechanical Sys., Inc. ., 15 F.3d 1573, 1576 (Fed.Cir.1993)). The first phase is known as claim construction and is exclusively a matter of law to be determined by the Court during the *Markman* phase of the patent infringement suit. *See* Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 1998 WL 134028 at *5- *6 (Fed.Cir. March 25, 1998)(*in banc*); Eastman Kodak Co. v. Goodyear Tire and Rubber Co., 114 F.3d 1547, 1552 (Fed.Cir.1997). This opinion is limited to the claim construction phase.FN5

FN5. Throughout its briefs on claim construction, Procycle attempts to argue issues of invalidity under 35 U.S.C. s. 112, para. 1 and para. 2. Procycle argues:
While it is clear that the forthcoming *Markman* hearing is not a forum for deciding issues relating to the validity of the '959 Patent's claims, it is clear that such issues must be addressed in certain situations here because a broad interpretation of the claim language is likely to result in the claims so considered to be invalid.

See D.I. 85 at 4. Procycle bases its argument on the proposition that the Court, when reasonably possible, may give preference to an interpretation that will render the claim valid over an interpretation that would render it invalid. Modine Mfg. Corp. v. United States ITC, 75 F.3d 1545, 1557 (Fed.Cir.1996) (stating while deciding a validity claim on the merits, and not during a claim construction, "[w]hen claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity.").

The Federal Circuit Court of Appeals, however, has consistently rejected this approach to claim construction and continues to draw a line between claim construction issues and issues of infringement and invalidity. *See* Markman v. Westview Instr., Inc., 52 F.3d 967, 986 (Fed.Cir.1995), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996); *see also* Intervet Am., Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1053 (Fed.Cir.1989) ("Ambiguity, undue breadth, vagueness, and triviality are matters which go to claim validity for failure to comply with 35 U.S.C. s. 112, para. 2, not to interpretation or construction."). Accordingly, if

the claim as properly construed renders the claim invalid, then the claim shall be invalid.
Proper claim construction is based primarily on the intrinsic evidence of the record, i.e., the claim language, the specification, and the prosecution history.FN6 *See* CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1152 (Fed.Cir.1997), *cert. denied sub nom.* Marchon Eyewear v. Tura LP, 522U.S. 1109, 118 S.Ct. 1039, 140 L.Ed.2d 105, 1998 WL 69415 (U.S. February 23, 1998). Without doubt, the claim language itself is first and foremost in importance when construing the meaning and scope of the patent. *See* Eastman Kodak, 114 F.3d at 1552. Claim language is interpreted according to its ordinary and customary meaning unless a special definition is stated in the specification or prosecution history. *Vitronics,* 90 F.3d at 1582. Additionally, claims in the same patent should be interpreted with reference to one another. *See* Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed.Cir.), *cert. denied,* 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). Lastly, and especially important in the construction of the claims involved in this suit, "the express structural limits of the claim language limits its scope." *See* York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1574 (Fed.Cir.1996).

FN6. Patent claims "particularly point out and distinctly claim the subject matter which the applicant regards as his invention." Markman, 116 S.Ct. at 1387-88 (quoting 35 U.S.C. s. 112). The patent specification "describes the invention 'in such full, clear, concise, and exact terms as to enable any person skilled in the art ... to make and use the same." ' Id. at 1388. The prosecution history "contains the record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims." Vitronics Corp. v. Conceptronic Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996).

Second in importance to the claim language in determining the meaning and scope of the patent is the specification and prosecution history. These forms of intrinsic evidence may be examined to more properly understand the metes and bounds of the claim. *See* Vitronics, 90 F.3d at 1582. In fact, the specification has been described as "often the single best guide to the meaning of a disputed term...." *See id.* When the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term. *See* Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed.Cir.1998). That being said, the prosecution history informs, as needed, the understanding of terms found in both the specification and the claim. *See id.* ("The evolution of restrictions in the claims, in the course of examination in the [Patent and Trademark Office], reveals how those closest to the patenting process-the inventor and the patent examiner-viewed the subject matter."). Indeed, the prosecution history may limit, through prosecution history estoppel, the interpretation of the disputed language to meanings not disclaimed by the inventor during the prosecution of the patents. CVI/Beta Ventures, 112 F.3d at 1155 (quoting Southwall, 54 F.3d at 1579).

Because this infringement suit involves a reissue patent, the question arises of what role the prosecution history of a reissue patent plays in interpreting a claim in that reissue patent. The danger is that the patentee will self-servingly make a reissue declaration that broadens the scope of the claims beyond what was intended by the inventor when the initial patent was first filed. *See* In re Amos, 953 F.2d 613, 617 (Fed.Cir.1991) ("The 'original patent' clause of [35 U.S.C.] s. 251 creates a requirement that precludes reissue ... of patents with claims to subject matter that could not have been claimed in the original patent that is submitted for reissue."). Nonetheless, the case law is clear that, "[r]epresentations made and explanations presented during the reissue procedure may be relevant to the interpretation of the claims." Fromson v. Anitec Printing Plates, 132 F.3d 1437, 1443 (Fed.Cir.1997); *see also* E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1439 (Fed.Cir.1988) ("Statements made during the reissue are

relevant prosecution history when interpreting claims."). That being said, a fundamental precept of patent law that protects against self-serving declarations during the reissue process is that, "[a]lthough the prosecution history can and should be used to *understand* the language used in the claim, it too cannot enlarge, diminish or vary the limitations in the claims." *See* Markman, 52 F.3d at 980 (emphasis added). Prosecution history, whether original or reissue, therefore can only help the court understand the claim language, it cannot not supplement the meaning of the claim.

Once the Court completes its examination of the claim language, the specification, and prosecution history, if the meaning and scope of the patent is still ambiguous, the Court may consider extrinsic evidence, "if necessary to aid the court's understanding of the patent." *See* Wright Medical Technology, Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed.Cir.1997). Although such extrinsic evidence may include expert testimony or the testimony of the inventor, technical treatises and dictionaries are favored over other forms of extrinsic evidence. *See* Vitronics, 90 F.3d at 1584 n. 6.FN7 However, if the intrinsic evidence within the patent unequivocally describes the meaning and scope of the disputed language, reliance on extrinsic evidence is improper. *See* id. at 1583; Bell & Howell Document Management Products Co. v. Altek Systems, 132 F.3d 701, 705 (Fed.Cir.1997) ("The intrinsic evidence should usually be sufficient to enable one to determine the meaning of a claim term.") (citations omitted). Consequently, the testimony of an inventor or his attorney concerning claim construction is entitled to little or no consideration. Bell & Howell, 132 F.3d at 706.

FN7. Technical treatises and dictionaries may not be employed, however, to contradict anything in the patent documents. *See* Vitronics, 90 F.3d at 1584 n. 6.

The Court now undertakes to the apply the above-enunciated claim construction principles to the disputed claim language in the '959 Patent.

IV. Claim Construction of the '959 Patent

A. "drive system assembly means" and "drive system assembly"

Reading the claims of the '959 Patent, the first claim language in dispute is the "drive system assembly means." This claim language is present in slightly different forms throughout the claims of the patent: there exists the "drive system assembly means" of claims 1 and 7 and the "drive system assembly" of claims 9 and 11. The purpose of the "drive system assembly" and the "drive system assembly means" in all these claims is to convert and sum the reciprocating motion of the pedals into continuous and fluid rotary motion. *See* Col. 7, lines 64-66 (claim 1); Col. 9, lines 18-19 (claim 7); Col. 10, lines 33-34 (claim 9); Col. 11, lines 16-17 (claim 11). The crux of the dispute between the parties is whether the rotary motion of the drive system assembly can be transmitted using a number of equivalent mechanical structures, or whether such rotary motion must be limited to one mechanical structure: the "drive sprocket" of claim 1. However, before the Court turns to the claim construction of these terms, it is first necessary to determine whether any, all, or none of these terms should be interpreted according to the dictates of 35 U.S.C. s. 112, para. 6, the means-plus-function statute.FN8

FN8. Procycle had initially agreed that none of these terms were subject to the "means-plus-function" analysis. However, on further reflection and analysis, Procycle now contends that the "drive system assembly means" of claims 1 and 7 should be construed under the means-plus-function rubric. *See* D.I. 109 at 13 n. 10. There is still no dispute that the "drive system assembly" of claims 9 and 11 are not subject to the means-plus-function analysis.

Although StairMaster contends Procycle should not be able to change its position at this late time in the *Markman* proceedings, *see* D.I. 116 at 16, the Court notes it would have conducted this analysis in any event because the language of the claim suggests a means-plus-function analysis might be implicated.

1. Means-Plus-Function Analysis

Under 35 U.S.C. s. 112, para. 6,FN9 "an applicant can describe a limitation of his invention by the result accomplished or the function served, rather than describing the item or limitation to be used...." Warner-Jenkinson v. Hilton Davis Chemical Co., 520 U.S. 17, 117 S.Ct. 1040, 1048, 137 L.Ed.2d 146 (1997). The use of the word "means" triggers a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses. York, 99 F.3d at 1574. However, this presumption is not conclusive. *See* Sage Products, Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1427 (Fed.Cir.1997). Where a claim uses the word "means," but specifies no corresponding function for the "means," s. 112, para. 6 is not implicated. *See id*. (quoting York, 99 F.3d at 1574). Similarly, if a claim has sufficient structure within the claim itself which can entirely perform the recited function, the language of the claim is not in means-plus-function format. *See id*. at 1427-28 (quoting Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed.Cir.1996), *cert. denied,* 522 U.S. 812, 118 S.Ct. 56, 139 L.Ed.2d 20 (1997)).

FN9. 35 U.S.C. s. 112 para. 6 (1984) reads:
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.

In the '959 Patent, the "drive system assembly means" of both claim 1 and claim 7 employ the word "means," and thereby presumptively implicate s. 112, para. 6. *See* York, 99 F.3d at 1574. Claim 1 states in relevant part:

... (d) *drive system assembly means* mounted on said plate in order to sum reciprocating motion into continuous and fluid rotary motion, said *drive system assembly means* having a right pedal sprocket, a left pedal sprocket and a drive sprocket, wherein said drive sprocket is driven by either said right sprocket or said left sprocket in one direction only and said right and left sprocket are free to overrun in the opposite direction....

Col. 7, line 64 through Col. 8, line 4 (emphasis added). Similarly, claim 7 states in relevant part:

... (c) *drive system assembly means* for summing motion into continuous and fluid rotary motion, said *drive system assembly means* having a right pedal sprocket, a left pedal sprocket and a drive means, wherein said drive means is driven by either said right sprocket or said left sprocket in one direction only and said right and left sprocket are free to overrun in the opposite direction....

Col. 9, lines 18-25 (emphasis added).

StairMaster believes the "drive system assembly means" of both of these claims recites only structure, with no function advanced. Procycle disagrees that no function is recited and states none of the functions to be

performed by the "drive system assembly means" can be accomplished by the structure recited in the claim. Because the parties' dispute centers around how much structure is sufficient to bring into play the means-plus-function analysis, the Court briefly turns its attention to this question.

The Federal Circuit Court of Appeals has in numerous instances discussed the amount of structure necessary to be recited in claim language before the means-plus-function section of the patent statute, 35 U.S.C. s. 112, para. 6, is applicable. Recently, the Federal Circuit stated: "[W]here a claim recites function, but then goes on to elaborate *sufficient structure,* materials, acts within the claim itself to *perform entirely the recited function,* the claim is not in means-plus-function format." Sage Products, 126 F.3d at 1427-28 (citations omitted) (emphasis added). It follows the structure recited in claims 1 and 7 is sufficient to avoid analysis under s. 112, para. 6 if the recited structure is capable of performing entirely the recited function. As the *York* case makes evident, in most cases this will mean the claim language must recite predominantly structure; however, *York* also makes clear that recitation of some structure is not necessarily sufficient to take a claim out of the means-plus-function rubric. *See* York, 99 F.3d at 1574-75 (quoting Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536 (Fed.Cir.1991)) ("[M]ere incantation of the word 'means' in a clause reciting predominantly structure cannot evoke section 112, para. 6.... [However,] the recitation of some structure in a means plus function element does not preclude the applicability of section 112(6).").FN10

FN10. Federal Circuit Court of Appeals precedent soundly rejects StairMaster's thesis that any reference to structure removes a claim from interpretation under the means-plus-function statute. Clearly, the recitation of "some structure" does not preclude applicability of s. 112, para. 6 in all cases. *See* York, 99 F.3d at 1574.

Applying this analysis, both the "drive system assembly means" of claim 1 and 7 function by summing reciprocating motion of the pedals into continuous and fluid rotary motion. Turning to the structure of these devices, the "drive system assembly means" of claim 1 includes a "right pedal sprocket," a "left pedal sprocket," and a "drive sprocket." FN11 The structure of the "drive system assembly means" of claim 7 includes a "right pedal sprocket," a "left pedal sprocket," and a "drive means." Because the Court finds the "right pedal sprocket", "the left pedal sprocket," and the "drive sprocket" or "drive means" is a clause reciting predominantly structure and capable of performing entirely the recited function of summing reciprocating motion into continuous and fluid rotary motion, application of the means-plus-function analysis is inappropriate for the "drive system assembly means" of claim 1 and claim 7.FN12

FN11. Additionally, claim 1 also refers to the "drive system assembly means" being mounted on a plate. However, this plate does not play any consequential role in the recited function of the claim language.

FN12. Although the drive shaft is also an essential structure which allows the "drive system assembly means" to sum reciprocating motion into rotary motion, as will be discussed more fully below, the Court construes the "drive sprocket" and "drive means" as requiring a "drive sprocket" linked to a "drive shaft."

2. "Drive System Assembly Means" of Claim 1

As the language of the claim is the first and most important source for the scope and meaning of the patent, *see* Eastman Kodak, 114 F.3d at 1552, the Court begins its analysis with a consideration of the disputed language. As discussed above, the claim language recited in claims 1, 7, 9 FN13 and 11 all explicitly state

the function of the "drive system assembly means" and "drive system assembly" as the summing of the reciprocating motion of the pedals into continuous and fluid rotary motion. Each claim has a slightly different structure to accomplish this function: claim 1 recites a "drive system assembly means" with a "right pedal sprocket," a "left pedal sprocket," and a "drive sprocket"; claim 7 recites a "drive system assembly means" with a "right pedal sprocket," a "left pedal sprocket," and a "drive means"; and claim 11 FN14 recites a "drive system assembly" with a "right one way clutch," a "left one way clutch," and a "drive means." Each of these claim terms are limited in scope by the express structural limits of the claim language. *See* York, 99 F.3d at 1574. Hence, these similar terms cannot be construed exactly alike, even though similar language is employed.

FN13. Because claim 9's "drive system assembly" employs substantially different claim language, it will be considered below, in its own section of this Opinion.

FN14. Claim 11 in relevant part recites:
... (c) a drive system assembly summing motion into continuous and fluid rotary motion, said drive system assembly having a right one way clutch, a left one way clutch, and a drive means....

Col. 11, lines 16-19.
The Court begins its claim construction with what appears to be the most self-evident construction, the "drive system assembly means" of claim 1. This self-evident nature stems from the fact that, both its structure and function are expressly set forth in the claim. That being said, the one difficulty with this claim language is that it fails to mention the drive shaft which is engaged by both the right and left pedal sprockets, and in turn causes the drive sprocket to turn in the same direction. *See* Col. 6, lines 13-15. In order to clarify the meaning of this claim, the Court looks to the specification of the '959 Patent.

The specification clearly points out that the drive sprocket is welded to a drive shaft. *See* Col. 3, lines 50-51; Col. 6, lines 3-5. The specification also makes evident that the drive sprocket, to operate properly, must be linked to the drive shaft because it is the drive shaft that is driven by the right or left pedal sprockets and their respective clutches. *See* Col. 6, lines 5-12. It is only once the left and right pedal sprockets positively lock with the drive shaft and cause it to turn in a counterclockwise direction that the drive sprocket also turns in that direction. *See* Col. 6, lines 13-15. The specification therefore makes clear there cannot be a drive sprocket existing alone, unbounded to any other mechanical instrumentality. Consequently, the Court finds the drive sprocket must be construed to be linked to a drive shaft. However, the Court does not require the drive sprocket be "welded" to the "drive shaft," for to do so would be to improperly import a preferred embodiment into broader claim language. *See* Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed.Cir.1994). The Court therefore construes the "drive system assembly means" of claim 1 as a device which sums the reciprocating motion of the pedals into continuous and fluid rotary motion by means of a right pedal sprocket, a left pedal sprocket, and a drive sprocket linked to a drive shaft.

The Court emphasizes it is improper to consider issues of equivalency during claim construction, as such issues are questions of fact for the factfinder. *See* B. Braun Medical, Inc. v. Abbott Laboratories, 124 F.3d 1419, 1423-1425 (Fed.Cir.1997). Therefore, throughout this Opinion, issues of equivalency, whether

structural equivalency under s. 112, para. 6 or equivalency under the doctrine of equivalents, will be left to the factfinder for a later day.

3. "Drive System Assembly Means" of Claim 7 and the "Drive System Assembly" of Claim 11

Because similar claim language in claims 7 and 11 include a "drive means," which is a potential means-plus-function clause,FN15 the Court must first construe the "drive means" before the meaning of the "drive system assembly means" of claim 7 and "drive system assembly" of claim 11 can be ascertained. FN16

FN15. *See infra* pp. 11 and 14 for the pertinent claim language.

FN16. Although the Court found the "drive system assembly means" of claim 7 not to be in means-plus-function form, nothing precludes a component of that assembly, i.e., the "drive means," from being in means-plus-function term. *See* Cole, 102 F.3d at 531 (deciding on "element-by-element basis" whether s. 112, para. 6 applies).

a. "drive means"

The "drive means" of claims 7 and 11 are recited in a similar fashion. Claim 7 in relevant part reads: "[S]aid drive means is driven by either said right sprocket or said left sprocket in one direction only and said right and left sprockets are free to overrun in the opposite direction." Col. 9, lines 21-25. Claim 11 reads in pertinent part: "[S]aid drive means is driven by either said one way right clutch or said left one way clutch in one direction only and said right and left one way clutches are free to overrun in the opposite direction." Col. 11, lines 19-23. StairMaster contends this language does not implicate s. 112, para. 6 because the clause does not specify a function to be performed and because the clause describes predominantly structure. Procycle counters this contention by asserting the term "drive means" has no structure and therefore, should be interpreted consistently with s. 112, para. 6.

The Court agrees with Procycle that the "drive means" of claims 7 and 11 recites no structure in the claim language. StairMaster's contentions notwithstanding, there is simply no mention of a "drive shaft" structure in the claim language.FN17 The Court also finds that the function of the "drive means" is self-definitionally "to drive"; more specifically, the "drive means" drives the "means for engaging," or another mechanical connection which is "engaged with" the drive means, which in turn drives either a "transmission means input," or a "transmission input." *See* Col. 9, lines 41-42; Col. 12, lines 2-3. Because this claim language recites a sufficient function and no structure whatsoever, the presumption has not been overcome that the word "means" was employed advisedly to invoke the statutory mandates for means-plus-function clauses. *See* York, 99 F.3d at 1574. Consequently, the Court will construe the "drive means" of claims 7 and 11 using the means-plus-function analysis of s. 112, para. 6.

FN17. Unlike in claim 1 where there is at least a "drive sprocket" structure disclosed, which was then construed to be linked to a drive shaft, similar structural language is not found in either claim 7 or claim 11. In short, because there is an absence of either a "drive sprocket" or a "drive shaft" in claims 7 and 11, the Court is unable, and unwilling, to construe "drive means" as having a "drive shaft" structure.

Under the means-plus-analysis, the Court must first identify the function of the means, and then locate the

corresponding structure in the specification of the patent. *See* 35 U.S.C. s. 112, para. 6; *see also* Sage Products, 126 F.3d at 1428. "A structure disclosed in the specification is only deemed to be 'corresponding structure' if the specification clearly links or associates the structure to the function recited in the claim." Kahn v. General Motors Corp., 1998 WL 38304 at *3 (Fed.Cir. February 3, 1998) (citing B. Braun Medical, 124 F.3d at 1424). The duty to link structure in the specification is the *quid pro quo* for the convenience of employing s. 112, para. 6. Kahn, 1998 WL 38304 at *3; (citing O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1583 (Fed.Cir.1997)). Although s. 112, para. 6 also allows a claim to cover equivalents to the corresponding structure, the determination of whether another structure can be considered equivalent to the corresponding structure is a question of. *See infra* 15; B. Braun Medical, 124 F.3d at 1425 (within jury's province to decide element not structurally equivalent under s. 112, para. 6); In re Hayes Microcomputer Prods., Inc., Patent Litigation, 982 F.2d 1527, 1541 (Fed.Cir.1992).

As already stated, the function of the "drive means" of claim 7 and claim 11 is to drive the "means for engaging," or another mechanical connection "engaged with" the drive means, which in turn drives either a "transmission means input," or a "transmission input." *See* Col. 9, lines 41-42; Col. 12, lines 2-3. The portion of the specification reciting structure associated with this function recited in the specification states:

The drive system assembly 78 ... includes a central drive shaft 106 having a drive sprocket 108 welded thereto.... FIGS 3 and 4 illustrate the drive system assembly operation. When either the left or right pedal is depressed, the drive shaft 106 will be rotated counterclockwise. *Continuous chain* 126 *is engaged with the teeth of the drive sprocket 108 and engaged with the teeth of the transmission sprocket* 128.

Col. 6, lines 3-5, 45-50 (emphasis added); *see also* Col. 3, lines 50-51, Col. 4, lines 3-5 (same). From this description, it is evident the drive sprocket 108 is the corresponding structure which drives the mechanical engagement in the prescribed manner.FN18 Further, it is also clear from the specification that without the counterclockwise rotational motion from the drive shaft 106, the continuous chain would never properly be driven by the drive sprocket. Consequently, the Court finds the corresponding structure associated with the recited function of the "drive means" in the claim is both the drive sprocket 108 and drive shaft 106 to which it is welded.

FN18. The prosecution history, which is relevant when construing means-plus-function clauses, *see* Cybor, 138 F.3d 1448, 1998 WL 134028 at *7 (citations omitted), also supports the Court's construction. In a Declaration accompanying his reissue application, Mr. Potts, the inventor of the '959 Patent, stated: " *Claim 1,* as issued, specifies the engagement with the transmission means be accomplished by a 'continuous chain drivingly engaging the *drive means*." ' *See* D.I. 86, Exh. 6 at 4. Significantly, claim 1 uses the phrase "drive sprocket" rather than the "drive means" used by Mr. Potts. Thus, this prosecution history lends support to the conclusion that the "drive means" should be interpreted to be a "drive sprocket" under the means-plus-function analysis.

The Court, as required by the means-plus-function analysis of s. 112, para. 6, sets out the following function and corresponding structure for the "drive means" of claim 7 and claim 11. The function of the "drive means" is to drive the "means for engaging," or another mechanical connection "engaged with" the "drive means," such that in turn this mechanical connection will drive either the "transmission means input," or the "transmission input." The corresponding structure in the specification that accomplishes this objective is drive sprocket 108 welded to drive shaft 106.

b. Claim Construction of "drive system assembly means" of claim 7 and "drive system assembly" of claim 11

Having defined the "drive means," the Court now turns back to its analysis of the "drive system assembly means" of claim 7 and the "drive system assembly" of claim 11. After the above means-plus-function construction, claim 7 requires the following structure for the "drive system assembly means": a left pedal sprocket, a right pedal sprocket, and drive sprocket 108 welded to drive shaft 106, or a structurally equivalent "drive means" structure. Nothing in the specification or the prosecution history contradicts this definition. In fact, the "express structural limits of the claim language," require this definition. *See* York, 99 F.3d at 1574. The Court therefore construes the "drive system assembly means" of claim 7 as a device which sums reciprocating motion of the pedals into continuous and fluid rotary motion by means of a right pedal sprocket, a left pedal sprocket, and drive sprocket 108 welded to drive shaft 106 or its structural equivalents.

Likewise, the "drive system assembly" of claims 11 requires the following structure: a right one way clutch, a left one way clutch, and drive sprocket 108 welded to drive shaft 106, or structurally equivalent "drive means" structure. Nothing in the specification or the prosecution casts doubt on this claim construction. Hence, the Court construes the "drive system assembly" of claim 11 as a device which sums reciprocating motion of the pedals into continuous and fluid rotary motion by means of a right one way clutch, a left one way clutch, and drive sprocket 108 welded to drive shaft 106 or its structural equivalent.

3. "Drive System Assembly" of Claim 9

Claim 9 of the '959 Patent, like claim 11, also refers to a "drive system assembly," and reads in pertinent part:

... a drive system assembly having a summing rotary member with a right one way clutch mounted thereon and a right elongated flexible member coupled to said rotary member through said right one way clutch, to transmit rotary movement to said rotary member is [sic] one direction in response to downward movement of said right pedal....

Col. 10, lines 33-39. Similar language exists for a "left one way clutch" and a "left elongated flexible member." See Col. 10, lines 53-55. StairMaster argues the "summing rotary member" serves the same function of the "drive means," and construes the "summing rotary member" in the exact same fashion it attempts to construe the "drive means," i.e, as only requiring a "drive shaft" and being capable of containing any of four types of mechanical connections. Procycle, on the other hand, contends that the "drive system assembly" of claim 9 consists of a right side one way clutch, a left side one way clutch, a rotary member, a right elongated flexible member, a left elongated flexible member and exhaustive detail of their arrangement. From this detailed description, Procycle argues that the "drive system assembly" must be construed to include the structural components itemized in claim 9.

It is well settled "the express structural limits of the claim language limit its scope." *See* York, 99 F.3d at 1574. It therefore follows the "drive system assembly" of claim 9 must be construed to contain a right one way clutch, a left one way clutch, a right elongated flexible member, a left elongated flexible member, and a summing rotary member. Equally evident is that this "drive system assembly" functions in a similar fashion to its linguistic counterparts, i.e., it sums reciprocating motion of the pedals into continuous and fluid rotary motion. *See* Col. 10, lines 33-34. What is less clear is how exactly the "summing rotary

member" should be construed.

Although the function of the "summing rotary member" is self-definitionally known from the language of the claim-to sum rotary motion-its structure is more of a mystery. The claim recites that the "summing rotary member" has a right and left one way clutch mounted on it, and a right and left elongated flexible member coupled to it, and that the "drive system assembly" transmits rotary movement to it in one direction in response to downward movement on either the left or right pedal. *See* Col. 10, lines 33-39. Because the Court can identify no structure associated with the "summing rotary member," and there is only a function recited for this term, it is proper to construe this language under the means-plus-function rubric. *See* Warner-Jenkinson, 117 S.Ct. at 1048; *see also* Cole, 102 F.3d at 531 ("merely because an element does not include the word 'means,' ... does not automatically prevent that element from being construed as a means-plus-function element.") (citations omitted).

To reiterate, the function of the "summing rotary member" is to sum rotary motion. The Court finds the following specification language encompasses the corresponding structure:

The drive system assembly 78 ... includes a central drive shaft 106 having a drive sprocket 108 welded thereto. Surrounding the shaft are the left sprocket 94 and the right sprocket 76. The left and right sprocket operate in conjunction with clutch bearings 110 and 112, respectively ... [W]hen the right sprocket turns counterclockwise, the sprocket 76 and clutch bearing 112 positively lock with the shaft 106 to turn the shaft counterclockwise. This occurs when the right pedal is being depressed. Thus, when the shaft 106 is rotated counterclockwise, the drive sprocket 108 will likewise be rotated counterclockwise....

Col. 6, lines 3-15; *see also* Col. 3, lines 50-57 (same). It is therefore the central drive shaft 106, which has the right and left one way clutch mounted to it, which performs partly the function of the "summing rotary member." However, without the drive sprocket 108, the drive shaft would not be able to sum the motion of the left and right sprocket as illustrated in the preferred embodiment. Further, and as articulated above, drive shaft 106 and drive sprocket 108 are welded together and it is their cumulative operation which leads to the reciprocating motion of the pedals being summed. Consequently, the Court finds the corresponding structure of the "summing rotary member" to be drive shaft 106 with drive sprocket 108 welded thereto.

Pulling together all the piece of the "drive system assembly" of claim 9, the Court finds the "drive system assembly" of claim 9 sums reciprocating motion of the pedals into continuous and fluid rotary motion by means of a drive shaft 106 welded to drive sprocket 108 or its structural equivalents, with a right or left one way clutch mounted thereon and coupled through said right or left side one way clutch to a right or left elongated flexible member. *See* Col. 10, lines 33-35, 53-56.

B. Different Forms of the Term "To Engage": "engage," "means for engaging," "engaged with," "drivingly engaging," and "drivingly engages"

The parties next seek an interpretation of the term "means for engaging" in claim 7, Col. 9, lines 41 and 45, and other forms of the term "engage," such as: "drivingly engages" in claim 1, Col. 8, lines 10 and 14; "drivingly engages" in claim 11, Col. 11, lines 30 and 35; "engaged with" in claim 11, Col. 12, lines 2 and 5; and "made to engage" in claim 11, Col. 12, lines 24 and 26. The dispute between the parties revolves around the type of structures which can perform the "engaging" function required in these claims. Procycle defines "engage" to refer to the mechanical meshing or interlocking of two physically independent pieces which contact one another, but which can be separated. StairMaster objects that this definition excludes

direct mechanical connections.

The Court will first construe the "means for engaging" claim language, as it presents issues not present in the other claim language, and then proceeds to the other forms of the word "engage."

1. "Means for Engaging" in Claim 7

There is no dispute between the parties that the "means for engaging" is a quintessential means-plus-function clause; that is, a function is recited for a device without any structure being delineated. Under the means-plus-function rubric the Court must consider not only the function, but also the corresponding structure found in the specification for these "means for engaging." *See* 35 U.S.C. s. 112, para. 6. In claim 7, the "means for engaging" is utilized in the following manner: "... (f) means for engaging said drive means and said transmission means input; ... (h) means for engaging said transmission output and said dynamic brake means...." *See* Col. 9, lines 41-42, 45-46.

Starting with clause (f), the function of the "means for engaging" is to engage the drive means with the transmission means input. Because as discussed above, the "drive means" refers to "drive sprocket 108 welded to drive shaft 106," the function can be stated as engaging drive sprocket 108 welded to drive shaft 106 with the transmission means input. The corresponding structure that is clearly linked or associated to the engaging function recited in the claim is illustrated in the specification as follows:

FIGS. 3 and 4 illustrate the drive system assembly operation. When either the left or right pedal is depressed, the drive shaft 106 will be rotated counterclockwise. *Continuous chain* 126 is engaged with the teeth of the drive sprocket 108 and engaged with the transmission sprocket 128....

Col. 6, lines 45-50 (emphasis added); *see also* Col. 4, lines 3-5 (same). The "transmission sprocket 128" is clearly associated or linked with the "transmission means input," as the transmission sprocket 128 is the means by which the continuous chain is able to transmit rotary motion to the transmission means input. The "means for engaging" the drive means to the transmission means input is therefore "continuous chain 126." Thus, the Court finds the claim language "means for engaging," found in clause (f) of claim 7, has the function of engaging the "drive means" to the "transmission means input" by means of "continuous chain 126" or structural equivalents thereto. FN19

FN19. Although prosecution history may be relevant for this means-plus-function clause and similar language found in clause (h), *see* Cybor, 138 F.3d 1448, 1998 WL 134028 at *7, prosecution history is not properly used to enlarge, diminish, or vary the language of a claim. *See* Markman, 52 F.3d at 980. As such, StairMaster's recital of declarations entered during the reissue process, *see, e.g.,* D.I. 88, Exh. 13 at 7, that seem to suggest the relevant chains and belts mentioned in the specification are readily interchangeable with other mechanical connections, are not appropriately used to enlarge the scope of the corresponding structure clearly linked with the function recited in the claim. Such equivalency determinations are properly made by the factfinder under s. 112, para. 6, or where appropriate, under the doctrine of equivalents. *See infra* p. 15.

As for clause (h) of claim 7, the function of the "means for engaging" is to engage the transmission output to the dynamic brake means. The corresponding structure linked or associated with the function recited in the claim is found in the following language of the specification:

As seen in FIG. 5, an output shaft 134 extends from the transmission on the opposite side from the input shaft 130 and terminates in a transmission tooth pulley 136.... The alternator includes an alternator shaft 144 and an alternator tooth pulley 146. The transmission wheel 136 and alternator tooth pulley 146 are connected by *continuous belt* 148.

Col. 6, lines 54-57, 62-67 (emphasis added); *see also* Col. 4, lines 7-12 (same). The "transmission wheel 136," which is also referred to as a "transmission tooth pulley 136," *see* Col. 6, line 57, corresponds to the "transmission output," as the output shaft 134 terminates in this structure. As for the "alternator tooth pulley," it is part of the alternator. The specification recites that an alternator operates in the following manner: "When the alternator's speed is greater than the predetermined speed, the voltage generated is directed to the load resistor, thereby *dynamically braking* the alternator." Col. 7, lines 28-31. Consequently, "the dynamic brake means" is associated or linked with the "alternator tooth pulley 146," which by transmitting rotary motion to the alternator is responsible for raising the alternator's speed beyond the predetermined level, thereby dynamically braking the alternator. *A priori,* the "means for engaging" in clause h of claim 7 therefore refers to the device that connects the "transmission output" with the "dynamic brake means": "continuous belt 148." The Court therefore construes the "means for engaging" of clause (h) of claim 7 as functioning by engaging the transmission output with the dynamic brake means by use of continuous belt 148 or its structural equivalents.

2. Other Forms of "Engage"

As for the other terms of engagement in contention, the parties readily agree that the means-plus-function portion of the statute does not apply to their interpretation. As a result, the Court considers the language of the claims, specifications, and prosecution history to construe these various forms of "engage." The Court will start at the beginning of the claims and work its way through to the end.

a. "Drivingly Engages" in Claim 1

As before, the Court first starts with the language of the claim itself. "Drivingly engages" as used in claim 1, Col. 8, lines 10 and 14, refers to an engagement between a right or left pedal means and a left or right pedal sprocket. *See* Col. 8, lines 5-15. Because a claim is circumscribed by its structural limitations, *see* York, 99 F.3d at 1574, and this claim requires the engagement of two sprockets, this claim language requires a chain engagement. The specification language supports this construction: "The chain 72 is made to pass over and *drivingly engage* the teeth of a right sprocket 76...." Col. 5, lines 32-34 (emphasis added). Similar language is found for a left chain 90 drivingly engaging a left sprocket. *See* Col. 5, lines 58-60. The Court is not importing language from the specification into the claims. Rather, it is simply looking to the specification to understand what might "drivingly engage" a sprocket. The claim language itself requires a sprocket and chain engagement, and there is nothing in the prosecution history FN20 that refutes this interpretation. The Court therefore finds that "drivingly engages" of Claim 1, Col. 8, lines 10 and 14 refers to a chain and sprocket mechanical engagement.

FN20. To reiterate, although prosecution history may be used to *understand* a claim language, it cannot vary, enlarge or diminish claim language. *See* Markman, 52 F.3d at 980. Further, if anything in the prosecution history is directly contrary to what is required by the claim, obviously the language of the claim, the first and foremost source of a patent's meaning and scope, *see* Eastman Kodak, 114 F.3d at 1552, takes precedence. Thus, whether or not prosecution history tends to establish the interchangeableness of various mechanical devices as argued by StairMaster, *see* D.I. 88, Exh. 13 at 7; D.I. 88, Exh. 9 at 7-9, 35, is besides the point where the claim language itself clearly requires a sprocket whose teeth must be engaged by a

chain.

b. "Drivingly Engages" in Claim 7 and 11

Next, the Court considers the claim language "drivingly engages" in claim 7, Col. 9, lines 32 and 37, and claim 11, Col. 11, lines 30 and 35. The relevant claim language states that a left or right pedal means "drivingly engages" either a right or left pedal sprocket (claim 7) or a right or left one way clutch (claim 11). *See* Col. 9, lines 26-38; Col. 11, lines 24-36. Unlike claim 1, however, this claim language gives no hint as to how the left or right pedal means engages the pedal sprockets or the one way clutches. Accordingly, the Court turns to the specification. The specification states in pertinent part:

The left and right sprockets operate in conjunction with clutch bearings 110 and 112, respectively. As viewed in FIGS. 3 and 4, when the right sprocket turns counterclockwise, the sprocket and clutch bearing positively lock with the shaft to turn the shaft counterclockwise.... Thus, when the shaft 106 is rotated counterclockwise, the drive sprocket 108 will clockwise be rotated counterclockwise.

Col. 6, lines 6-15; *see also* Col. 3, lines 51-57 (same). It therefore appears in the specification the pedal sprockets and one way clutch bearings drivingly engages a drive shaft which has a drive sprocket linked to it. However, as this preferred embodiment is not required by the language of the specification, it is improper to import this language into the claim where the claim language appears to be broader. *See Specialty Composites,* 845 F.2d at 987; Electro Medical, 34 F.3d at 1054; *see also* CVI/Beta Ventures, 112 F.3d at 1158. Therefore, "drivingly engage" in claim 7 and 11 can cover engagement by any of a number of mechanical connections. Nor does the specification require any special definition for this claim language. Accordingly, the claim should be interpreted according to its ordinary and customary meaning. *See* Vitronics, 90 F.3d at 1582.

Consulting the dictionary, "engage," as used in this context, means "to come into contact or interlock with, mesh." *See* Webster's Third New Int'l Dictionary at 751. "Drivingly" is defined in the following manner: "with driving force or energy." *See id*. at 692. Consequently, the customary meaning of "drivingly engages" is to come into contact, interlock, or mesh with driving force or energy. There being nothing to the contrary which limits this claim language to any narrower definition, the Court construes "drivingly engages" to cover any mechanical connection which comes into contact, interlocks, or meshes with driving force or energy. The Court therefore finds that the language "drivingly engages" of claim 7, Col. 9, lines 32 and 37, and claim 11, Col. 11, lines 30 and 35, refers to any type of mechanical engagement between a pedal means and a pedal sprocket or one way clutch that is capable of coming into contact, interlocking, or meshing with driving force or energy.

c. "Engaged With" in Claim 11

Another phrase in contention in claim 11 is the term "engaged with." *See* Col. 12, lines 2 and 5. The relevant claim language recites:

... (e) a speed increasing transmission having an input and an output, said transmission input being *engaged with* said drive means; (f) a brake dissipating the work of the user in the form of heat, said brake being *engaged with* the transmission output....

Col. 12, lines 1-6 (emphasis added). Similar language has already been interpreted with regards to claim 7,

clauses (f) and (h), in the interpretation of "means for engaging." *See supra,* at 24-27. As in clause (f) of claim 7, clause (e) of claim 11 also refers to a connection between the transmission input and the drive means. As in clause (h) of claim 7, clause (f) of claim 11 refers to a connection between a brake and a transmission output. However, because this language of claim 11 is not in means-plus-function form, the interpretation of "engaged with" is not limited to the corresponding structure found in the specification and equivalents thereto, as the "means for engaging" were. Instead the Court must consult the specification, and any relevant prosecution history, in order to better understand the claim language.

While the specification mentions a chain for the first connection and a belt for the second connection, *see* Col. 6, lines 48-50; Col. 6, lines 65-67, the claim language is not so limited where it is broader than the preferred embodiment and no particular structure is required in the specification. *See Specialty Composites,* 845 F.2d at 987; Electro Medical, 34 F.3d at 1054; *see also* CVI/Beta Ventures, 112 F.3d at 1158. Being nothing in the intrinsic evidence which provides a special meaning for "engaged with," the Court again employs the customary and ordinary meaning of "engage," as coming into contact, interlocking, or meshing. As such, the Court construes the language "engaged with," found in claim 11, Col. 12, lines 2 and 5, to mean any type of mechanical engagement capable of coming into contact, interlocking or meshing a drive means and transmission input or a transmission output and a brake.

d. "Made to Engage" in Claim 11

Lastly, the Court must interpret the phrase "made to engage" found in claim 11, Col. 12, lines 24 and 26. The relevant claim language states: "... (j) a right elongated flexible member ... *made to engage* said right one way clutch and said left elongated flexible member ... *made to engage* said left one way clutch." Col. 12, lines 21-26 (emphasis added). The claim language is again silent as to what type of connection was contemplated by the inventor at the time of the invention. The specification and prosecution history are also unhelpful insofar as determining how such a structure is "made to engage" a right or left one way clutch. Finding no indication to the contrary in the intrinsic evidence that the claim language should be construed more narrowly, and again applying the customary meaning of "engage," the Court construes the terms "made to engage" to refer to the making of a mechanical connection, by means of coming into contact, interlocking, or meshing, between a right or left elongated flexible member with a right or left one way clutch.

C. "speed increasing transmission" and "speed increasing transmission means"

Having construed the "drive system assembly," its various forms and sub-parts, and having construed the various forms of the claim language "engage," the Court lastly addresses the "speed increasing transmission means" of claim 1 and claim 7, and the "speed increasing transmission" of Claim 11. *See* Col. 8, line 16; Col. 9, line 39; Col. 12, line 1. The parties agree both of these devices operate by transferring rotational motion from the drive system assembly or drive system assembly means to the brake and, in the process, increases the speed of rotary motion transmitted to the brake. *See* D.I. 85 at 47-49, D.I. 87 at 15. The dispute between the parties centers around whether these speed increasing structures are limited to the specific transmission device used in the specification, i.e., a series of gears, or whether these structures may also include other structures, such as a belt and pulley system, a chain and sprocket system, or a direct mechanical coupling. Procycle argues for the former interpretation; StairMaster, the latter.

As an initial matter before construing this claim language, it is necessary to determine whether these terms fall under the means-plus-function rubric of 35 U.S.C. s. 112, para. 6. StairMaster contends the "speed increasing transmission means" of claims 1 and 7 is not subject to s. 112, para. 6 because the "speed

increasing transmission means" recites no function to be performed and there is sufficient structure to take this claim language out of the means-plus-function ambit. Further, StairMaster believes the "speed increasing transmission" of claim 11 is not in means-plus-function form as it also recites no function, has sufficient structure and additionally, does not use the word "means," to advisedly invoke the means-plus-function statute. Procycle, on the other hand, asserts the "speed increasing transmission means" of claims 1 and 7 presumptively recites, by using the word "means," means-plus function language available under 35 U.S.C. s. 112, para. 6. Further, Procycle contends the "speed increasing transmission" of claim 11 should be interpreted like its counterpart claim language found in claim 1 and claim 7 and is therefore, under the means-plus-function rubric. Thus, Procycle desires that all three phrases be construed consistently under s. 112, para. 6.

1. Applicability of Means-Plus-Function

"Speed increasing transmission means" is found in claim 1 and claim 7 of the '959 Patent. Use of the word "means" in this phrase triggers a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses. York, 99 F.3d at 1574. However, to reiterate, this presumption is not conclusive. *See* Sage Products, 126 F.3d at 1427. The question must be asked whether the claim uses the word "means," but specifies no corresponding function for the "means," *see id*. (quoting York, 99 F.3d at 1574), or whether the claim has sufficient structure within the claim which can perform entirely the recited function. *See id*. at 1427-28 (quoting Cole v. Kimberly-Clark, 102 F.3d at 531); York, 99 F.3d at 1574 ("[M]ere incantation of the word "means" in a clause reciting predominantly structure cannot evoke section 112, para. 6.") (citations omitted).

As the function of the "drive means" was self-definitionally to drive, the "speed increasing transmission means" is self-definitionally a "transmission which transmits and increases speed." The Court therefore cannot agree with StairMaster that the "speed increasing transmission means" has no function. As for whether there is sufficient structure recited in the claim to preform the transmitting and speed increasing functions, the Court must look more closely at the language of the claims.

Claim 1, in pertinent part, recites: "... (f) speed increasing transmission means mounted on said plate having an input and an output...." Col. 8, lines 16-17. Claim 7, in pertinent part, reads: "... (e) speed increasing transmission means having an input and an output...." Col. 9, lines 39-40. As discussed above in reference to the "drive system assembly means," claim language has sufficient structure if it recites sufficient structure such that the recited structure can entirely perform the recited function. *See* Sage Products, 126 F.3d at 1427-28; York, 99 F.3d at 1574. The only structure given to the "speed increasing transmission means" is that of a transmission, an input, an output, and in claim 1, an inconsequential plate on which the means is mounted. It cannot be gainsaid that although this claim recites predominantly structure, the structure recited in the claim cannot alone perform the transmitting and speed increasing functions. Specifically, there is lacking from the claim language means by which the transmission can transmit or increase speed. Consequently, the Court finds there is not sufficient structure to take this claim language out of means-plus-function form and therefore, s. 112, para. 6 should be applied in construing the "speed increasing transmission means" of claim 1 and 7.

That leaves the Court to determine whether the "speed increasing transmission" of claim 11 should be interpreted under a means-plus-function analysis. Claim 11 in pertinent part reads: "... (e) a speed increasing transmission having an input and an output, said transmission input being engaged with said drive means...." Col. 12, lines 1-3. Although there is presumed to be a difference in meaning and scope when different

words or phrases are used in separate claims, practice has also long recognized that "claims may be multiplied ... to define the metes and bounds of the invention in a variety of different ways." *See* Tandon Corp. v. United States Int'l Trade Comm., 831 F.2d 1017, 1023 (Fed.Cir.1987). Additionally, merely because claim language does not include the word "means," this fact does not prevent a Court from applying the means-plus-function analysis. *See* Cole, 102 F.3d at 531. Lastly, the Court is guided by the fact, that as before, there is a function-to transmit and increase speed-and the structure delineated for the "speed increasing transmission" is incapable of entirely performing the recited function. The Court therefore concludes that although the "speed increasing transmission" of claim 11 does not employ the word "means" and reads slightly differently from the "speed increasing transmission means" of claims 1 and 7, it too should be interpreted according to means-plus-function principles.

2. Means-Plus-Function Analysis

As already stated, the function of the "speed increasing transmission means" and the "speed increasing transmission" is to transmit and increase speed. The corresponding structure associated with this speed increasing device is found in the following specification language:

The transmission sprocket 128 rotates an input shaft 130 of a transmission 132 secured on side [sic] to the plate 26. The transmission contains a series of gears (not shown) which act as a speed increaser. As seen in FIG. 5, an output shaft 134 extends from the transmission on the opposite side from the input shaft 130 and terminates in a transmission tooth pulley 136.

Col. 6, lines 51-57; *see also* Col. 4, lines 5-8 ("The transmission sprocket rotates an input shaft of a transmission which acts as a speed increaser. An output shaft extends from the transmission and terminates at a transmission tooth pulley."). The Court finds "transmission 132" is linked with both the "speed increasing transmission means" and the "speed increasing transmission," as "transmission 132" also has an input and a output, is mounted on a plate as is the "speed increasing transmission means" of claim 1, and functions by transmitting rotational speed and increasing rotational speed. Consequently, the corresponding structure in the specification that performs the speed increasing function must be the series of gears, not shown in the patent drawings.FN21

FN21. StairMaster argues that by overcoming an Office Action, the prosecution history proves the patent examiner accepted that the chain and sprocket device employed by an invention prototype was equivalent to the series of gears used in the '959 Patent. Although the prosecution history might indeed support StairMaster's contention that it was contemplated that the "speed increasing transmission means" or "speed increasing transmission" was not limited to a series of gears, *see* D.I. 88, Exh.9 at 33-35, it is improper at this time to use the prosecution history to make any type of equivalency determination under s. 112, para. 6. Hence, the Court needs not to address Procycle's contention that any reference to the prototype of the 4000-PT stair-climbing device should be excluded by the Court as impermissible new matter under 35 U.S.C. s. 251.

The Court therefore finds the "speed increasing transmission means" of claims 1 and 7 and the "speed increasing transmission" of claim 11 function by transmitting rotational motion and increasing rotational speed by means of a series of gears or structural equivalents thereto.

An appropriate order will issue.

D.Del.,1998.
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