United States District Court,
S.D. Indiana, Indianapolis Division.

VANDOR CORPORATION,
Plaintiff.
v.
David K. WILSON, Molding Solutions, Inc., and Anderson Forest Products, Inc,
Defendants.

No. IP 99-0946-C-M/S

July 3, 2001.

Patentee brought action against alleged infringers relating to reel assembly for supporting flexible materials. On alleged infringers' motion for partial summary judgment, the District Court, McKinney, J., held that: (1) genuine issue of material fact existed as to whether protrusion on alleged infringer's flange infringed patentee's patent; (2) alleged infringers did not literally infringe on patent; (3) genuine issue of material fact existed as to whether alleged infringers' flange infringed patentee's patent under doctrine of equivalents; and (4) genuine issue of material fact existed as to whether patentee engaged in inequitable conduct by allegedly failing to disclose posts that facilitated stacking in prior art.

Motion granted in part, and denied in part.

5,897,075. Cited.

Michael A. Dorelli, Leagre Chandler & Millard LLP, Indianapolis, IN, Harold C. Moore, Maginot Addison & Moore, Indianapolis, IN, for plaintiff.

Douglas B. Bates, Stites & Harbison, Jeffersonville, IN, John C. McNett, Woodard Emhardt Naughton Moriarty & McNett, Indianapolis, IN, for defendants.

ORDER ON DEFENDANTS' MOTION FOR PARTIAL SUMMARY JUDGMENT

McKINNEY**, District Judge.**

This cause is now before the Court on defendants', David K. Wilson, Molding Solutions, Inc. and Anderson Forest Products, Inc.'s ("AFP") (the defendants collectively "Defendants"), motion for partial summary judgment on the patent infringementclaims brought against them by the plaintiff, Vandor Corporation ("Vandor"). Vandor is the owner of U.S. Patent No. 5,897,075 (the "'075 patent"), that describes a reel assembly for supporting flexible materials. Vandor alleges that a product manufactured by AFP, the AFP Flange # 2, infringes the '075 patent's independent claim 23, and its dependent claims, claims 24 through 30, and independent claim 31, and its dependent claims, claims 32 through 37. In the instant motion, the

Defendants assert that the AFP Flange # 2 does not infringe independent claims 23 or 31, either literally or under the doctrine of equivalents. In part, the Defendants argue that specific elements of claims 23 and 31 were anticipated by the prior art, and therefore, force a particular claim construction. Finally, the Defendants aver that the Court should invalidate Vandor's patent because Vandor violated its duty of candor to the Patent and Trademark Office (the "PTO") during prosecution of the '075 patent.

[1] The issues have been fully briefed and are ripe for ruling. FN1 For the reasons discussed herein, the Court **DENIES** the Defendants' motion for partial summary judgment.

FN1. The Court notes that Vandor, the plaintiff, filed a surreply in this action to which the Defendants objected. The Defendants' objection states that the surreply was not requested by Vandor nor provided for in the case management plan approved by the Court. Further, the additional evidence to which the surreply is directed was already in the hands of the plaintiffs when it filed its brief in opposition. The Court is not persuaded that the plaintiff's surreply was unwarranted because the Defendants did supply new evidence in their reply to Vandor's brief in opposition. Further, even though the Defendants allege that Vandor should have brought the evidence forward to prove its knowledge of prior art, it is the Defendants' burden to prove inequitable conduct by a preponderance of the evidence, not Vandor's. For these reasons, the Defendants' motion objection to the plaintiff's surreply is OVERRULED.

I. ***BACKGROUND*** FN2

FN2. The majority of the facts here are taken from the from Vandor's statement of additional material fact and from the Defendants' submission of a statement of undisputed material fact. The Defendants also submitted a statement of disputed fact in their brief; however, not all propositions of fact contain citations to relevant, admissible evidence. Moreover, the Defendants did not submit a response to Vandor's statement of additional material fact; therefore, the Court will assume that the Defendants did not have any objections to Vandor's statement of additional material fact.

The PTO issued the '075 patent to Jack E. Elder ("Elder") and Gary L. Cox ("Cox") on April 27, 1999. Defs.' Exh. E, Jack E. Elder, Gary L. Cox, U.S. Patent No. 5,897,075, Apr. 27, 1999, at 1 (the "'075 Patent"). Elder and Cox assigned the '075 patent to Vandor Corporation, for whom both Elder and Cox worked at the time the invention was developed. Elder Decl. para. 3. The patent had matured from application number 08/866,430 filed on May 30, 1997. *See* id. Elder and Cox assigned the '075 patent to Vandor, for which both Elder and Cox worked at the time the invention was developed. Elder Decl. para. 3.

Vandor manufacturers reels that are used to store, transport and dispense windable, flexible materials, such as rope, cable or wire. Id. para. 4. Certain models of those reels, made of two plastic "flanges" and a paperboard "core," are the subject of the '075 patent. Id. para. 5. Historically, such reels were made using wood and/or metal components. Id. para. 6. But, both types of material had drawbacks including numerous manufacturing steps. Id. para.para. 6, 8. Vandor decided to start making plastic reels because they were less expensive to manufacture than wooden reels. Cox Decl. para. 4.

The plastic-flange reels that Vandor manufacturers include three main pieces, a paperboard central core and two plastic flanges. Elder Decl. para. 10. Many reels include fasteners. Id. Apparently, the idea for the plastic-flange reels developed when Vandor wanted to provide a more "environmentally friendly" reel to

encourage re-use rather than disposal of plastic reels. Id. para.para. 11-13. The inventors recognized that if a reel was not easily disassembled, the customer would be less likely to ship the reels back and if they did ship them back, it would be costly because of the wasted space. Id. para.para. 11, 14. However, with an easily disassembled reel, the two plastic flanges could be shipped back for re-use much more cost effectively because the pieces are more compact than whole reels. Id. para. 14. The '075 patented invention boasts a cost effective, easily manufactured reel with sufficient strength. Id. para. 20. Two other critical design features of the '075 patented invention are the connection scheme for the paperboard core within the two plastic flanges to minimize rotation of the core during use of the reel, and the stacking features of the flanges to allow nesting or registration of used flanges for packing and shipping. Id. para.para. 23-30. It is the later two design features that are at issue in this suit.

David Wilson ("Wilson"), one of the defendants, was employed by Vandor during the development of Vandor's plastic reels. Id. para. 31. Wilson was responsible for injection molding, including selection, acquisition and maintenance of the molding tool for the plastic flanges. Id.

Only two of the six independent claims in the '075 patent are at issue in this case, claims 23 and 31. Pl.'s Resp. to AFP's Interrogs. & Reqs. for Prod. of Docs. & Things, Resp. to Interrogs. Nos. 2.1, 2.2, Exhs. A & B ("Pl.'s Disc. Resp."). The claims state:

23. An apparatus for supporting wound flexible media comprising:

a first flange having a radial core engaging surface and an axial core engaging surface;

a second flange having at least one aperture;

a core interposed between said first flange and said second flange, said core engaging the radial core engaging surface and the axial core engaging surface;

means for connecting the first flange to the second flange while said core is interposed between said first flange and second flange;

wherein said first flange further comprises *means for preventing rotation of the first flange with respect to the core, said means for preventing rotation being disposed on at least one of the radial core engaging surface and the axial core engaging surface*.

* * * * * *

31. A flange for use in a reel assembly comprising a core disposed between two flanges, said flange comprising:

an annulus having at least one annular rim, said annular rim extending axially from a first side of the annulus;

at least one core engaging surface disposed on a second side of the annulus; and

a plurality of ribs disposed on said first side of the annulus, said plurality of ribs having an axial height sufficient to engage a second flange annular rim that axially extends from a first side of a second flange to

facilitate registration of a reel assembly including the flange with a second reel assembly including the second flange and to retain the reel assembly in registration with the second reel assembly.

Defs.' Exh. E, '075 Patent, col. 12, *ll*. 21-36; col. 12, *ll*. 62-67 to col. 13, *ll*. 1-8 (emphasis added). For purposes of summary judgment, the Defendants dispute only the portion of each claim emphasized above.

AFP has been producing wooden reels since 1968. Anderson Decl. para. 2. When AFP lost business to Vandor at a long-time customer, AFP decided to market a plastic reel in addition to its more traditional wooden reel. Id. para. 4. AFP sold its first plastic reel in January 1999. Id. para. 6. Prior to making, using or selling its plastic reel, AFP had a patent search conducted; the search did not disclose any relevant patents. Id. para. 5.

The '075 patent issued on April 27, 1999; Vandor sent AFP a cease and desist letter dated June 14, 1999, alleging that AFP's plastic reel infringed the '075 patent. FN3 Defs.' Exh. F, Letter, From Harold C. Moore, Magnot, Addison & Moore, to Billy J. Anderson, President, Am. Forest Prods., Inc., June 14, 1999 (the "Cease & Desist Letter"). AFP ceased manufacture, use and sale of its plastic reel on July 6, 1999. Anderson Decl. para. 9. It then redesigned its reel to ensure it would not infringe using an alternative flange design, called Flange # 2. Id. para. 10. AFP began manufacturing, using and selling the AFP Flange # 2 in October 1999. Id. para. 12. AFP asserts that its flange design is more similar to the prior art than the '075 patented design. Id. para. 11. Vandor added AFP as a defendant in the instant suit in January 2000; AFP ceased manufacture, use and sale of all its plastic reels in May 2000. Id. para.para. 13-14.

FN3. The facts contained in this paragraph come from the Defendants' brief, in a section entitled "Statement of Facts." Defs.' Mem. in Supp. at 2. The Court is unsure of whether these facts were meant to supplement the Defendants' argument because they are not numbered as required by Local Rule 56.1 and the plaintiff did not object to them; therefore, the Court will use them here for purposes of clarity only.

Having reviewed the basic facts of the case, the Court will now turn to the standards that govern its decision.

II. *STANDARDS*

A. SUMMARY JUDGMENT

[2] Summary judgment is granted "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed.R.Civ.P. 56(c). *See also* CAE Screenplates v. Heinrich Fiedler GmbH, 224 F.3d 1308, 1316 (Fed.Cir.2000). An issue is genuine only if the evidence is such that a reasonable jury could return a verdict for the opposing party. *See* Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). A disputed fact is material only if it might affect the outcome of the suit in light of the substantive law. *See id*.

In considering a summary judgment motion, a court must draw all reasonable inferences in the light most favorable to the opposing party. *See* Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 988 (Fed.Cir.1999); Wollin, 192 F.3d at 621; Thomas & Betts Corp. v. Panduit Corp., 138 F.3d 277, 291 (7th Cir.), *cert. denied,* 525 U.S. 929, 119 S.Ct. 336, 142 L.Ed.2d 277 (1998); Spraying Sys. Co. v. Delavan, Inc.,

975 F.2d 387, 392 (7th Cir.1992). If a reasonable fact finder could find for the opposing party, then summary judgment is inappropriate. Stop-N-Go, 184 F.3d at 677; Shields Enters., Inc. v. First Chicago Corp., 975 F.2d 1290, 1294 (7th Cir.1992). When the standard embraced in Rule 56(c) is met, summary judgment is mandatory. Celotex Corp., 477 U.S. at 322-23, 106 S.Ct. 2548; Thomas & Betts, 138 F.3d at 291; Shields Enters., 975 F.2d at 1294.

B. PATENT INFRINGEMENT

[5] Reviewing whether the AFP Flange # 2 infringes the '075 patent is a two step process. *See* CAE Screenplates, 224 F.3d at 1316; K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1362 (Fed.Cir.1999). First, the Court must interpret the disputed claims, "from a study of all relevant patent documents," to determine their scope and meaning. K-2 Corp., 191 F.3d at 1362. *See also* Dolly, Inc. v. Spalding & Evenflo Cos., Inc., 16 F.3d 394, 397 (Fed.Cir.1994). Second, the Court must determine if the accused device, system or process comes within the scope of the properly construed claims, either literally or by a substantial equivalent. *See* K-2 Corp., 191 F.3d at 1362; Dolly, 16 F.3d at 397; SmithKline Diagnostics v. Helena Labs. Corp., 859 F.2d 878, 889 (Fed.Cir.1988).

1. *Claim Construction*

[6] When construing the '075 patent's claims, the Court must determine the meaning of the language used before it can ascertain the scope of the claims that Vandor alleges are being infringed. *See Markman v. Westview Instruments, Inc.,* 52 F.3d at 979 (Fed.Cir.1995) (" *Markman I* "), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) (" *Markman II* "). In doing so, the Court's interpretive focus is not the subjective intent of the parties employing a certain term, but the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean. *See id.* at 986. Furthermore, when the Court undertakes its duty to construe the claims, it first must look to the intrinsic evidence: the asserted and unasserted claims, the specification, and the prosecution history. *See* Desper Prods. Inc. v. QSound Labs, Inc., 157 F.3d 1325, 1333 (Fed.Cir.1998) (citing Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581 (Fed.Cir.1996)); *Markman I,* 52 F.3d at 979. Most of the time, such evidence will provide sufficient information for construing the claims. *See* Vitronics, 90 F.3d at 1583.

[7] [8] The patent claims should " 'particularly point out and distinctly clai[m] the subject matter which the applicant regards as his invention.' " Markman II, 517 U.S. at 373, 116 S.Ct. 1384 (citing 35 U.S.C. s. 112). During claim construction, the appropriate starting point for the Court's inquiry is always the words of both the asserted and unasserted claims. *See* Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed.Cir.1999); Comark Comms., Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed.Cir.1998); Vitronics, 90 F.3d at 1582; *see also* Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed.Cir.1998). It is the claims, not the written description, that define the scope of the patent and accordingly, the patentee's rights. *See* Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347 (Fed.Cir.1998); *Markman I,* 52 F.3d at 970-71. As the Federal Circuit has recently noted, "[c]ommon words, unless the context suggest otherwise, should be interpreted according to their ordinary meaning." Desper Prods., 157 F.3d at 1336 (citing York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572 (Fed.Cir.1996)). *See also* Renishaw, 158 F.3d at 1249. Further, when there are several common meanings for a term, "the patent disclosure serves to point away from the improper meanings and toward the proper meaning." Renishaw, 158 F.3d at 1250. *Accord* Desper Prods., 157 F.3d at 1336 (stating that the context of the claims can be found in the specification and drawings).

[9] [10] A claim term will not be given a common dictionary meaning, however, if such a reading would be

nonsensical in light of the patent disclosure, or specification. *See* Renishaw, 158 F.3d at 1250. Accordingly, the correct claim construction is also the one that "stays true to the claim language and most naturally aligns with the patent's description of the invention." *Id*. That description, or specification, serves an important purpose. In it, the patentee must provide a written description of the invention that would allow a person of ordinary skill in the art to make and use the invention. *See Markman I,* 52 F.3d at 979. The applicable statute requires that "[t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains ... to make and use the same...." 35 U.S.C. s. para. 112, para. 1. Therefore, to discover the correct meaning of a disputed claim term, the Court must refer to the specification's description of the invention.

[11] [12] In addition, a patentee may be his or her own lexicographer and use terms in a manner different from their ordinary meaning. *See* Vitronics, 90 F.3d at 1582. If the patentee chooses to do that, he or she must clearly state the special definition in the specification or file history of the patent. *See id*. The specificationthen serves as a dictionary when it defines terms, either expressly or by implication, that are used in the claims. *See id*. Therefore, it is also important to review the specification to discern whether the patentee has used a term in a way that is inconsistent with its ordinary meaning. *See id*. However, the specification should be used to clarify unclear claim terms, not to "trump the clear meaning of a claim term." Comark, 156 F.3d at 1187 (citing E.I. du Pont de Nemours & Co. v. Phillips Petroleum, 849 F.2d 1430, 1433 (Fed.Cir.1988)).

[13] [14] Claims must be read in light of the specification. *See Markman I,* 52 F.3d at 979. However, limitations from the specification may not be read into the claims. FN4 *See* Comark, 156 F.3d at 1186; *see also* Laitram, 163 F.3d at 1347. In particular, the Court should not limit the invention to the specific examples or preferred embodiment found in the specification. *See* Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed.Cir.1986), *reh'g denied,* 846 F.2d 1369 (1988); *see also* Comark, 156 F.3d at 1186. Therefore, the "repetition in the written description of a preferred aspect of a claim invention does not limit the scope of an invention that is described in the claims in different and broader terms." Laitram, 163 F.3d at 1348. *See also* Electro Med. Sys. v. Cooper Life Scis., Inc., 34 F.3d 1048, 1054 (Fed.Cir.1994).

FN4. An exception to this rule applies when the claim is written in a means- or step-plus-function format under 35 U.S.C. s. 112, para. 6. The parties in the instant suit dispute the meaning of a "meansplus-function" term in the '075 patent. Therefore, the rules of construction for such terms will apply as described herein.

[15] [16] Interpreting the meaning of a claim term "is not to be confused with adding an extraneous limitation appearing in the specification, which is improper." Laitram, 163 F.3d at 1348 (quoting Intervet Am., Inc. v. Kee-Vet Lab., Inc., 887 F.2d 1050, 1053 (Fed.Cir.1989)). An extraneous limitation is a limitation added "wholly apart from any need to interpret what the patentee meant by particular words and phrases in the claim." Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 950 (Fed.Cir.1993). *See also* Renishaw, 158 F.3d at 1249. Although there is a fine line between reading a claim in light of the specification and reading a limitation from the specification into the claim, the Court must look cautiously to the specification for assistance in defining unclear terms. *See* Comark, 156 F.3d at 1186-87.

[17] The third source of intrinsic evidence is the patent's prosecution history. *See* Desper Prods., 157 F.3d at

1336-37; Vitronics, 90 F.3d at 1582. "Prosecution history is an important source of intrinsic evidence in interpreting claims because it is a contemporaneous exchange between the applicant and the examiner." Desper Prods., 157 F.3d at 1336-37. In a patent's prosecution history the court will find a complete record of the proceedings before the PTO leading to issuance of the patent. *See* Vitronics, 90 F.3d at 1582. The prosecution history contains both express representations made by the patentee concerning the scope of the patent, as well as interpretations of claim terms that were disclaimed during the prosecution. *See* id. at 1582-83; *see also* Southwall Tech. Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.), *cert. denied,* 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). Although the prosecution history is useful for understanding claim language, it "cannot enlarge, diminish, or vary the limitations in the claims." *Markman I,* 52 F.3d at 979 (quotations omitted).

[18] [19] In some cases, it may be necessary for the Court to consult extrinsic evidence to aid it in construing the claim language. *See* Pitney Bowes, 182 F.3d at 1308; Vitronics, 90 F.3d at 1584. Extrinsic evidence is any evidence outside of the patent and prosecution history, "including expert and inventor testimony, dictionaries, and learned treatises." *Markman I,* 52 F.3d at 980. *See also* Pitney Bowes, 182 F.3d at 1308. It may be used to assist the Court's understanding of the patent, or the field of technology. *See Markman I,* 52 F.3d at 980-81. However, "courts [should] not *rely* on extrinsic evidence in claim construction to contradict the meaning of claims discernible from thoughtful examination of the claims, the written description, and the prosecution history-the intrinsic evidence." Pitney Bowes, 182 F.3d at 1308 (citing Vitronics, 90 F.3d at 1583). Judges are not usually "conversant in the particular technical art involved," or capable of reading the patent specification and claims as one skilled in the art might. *See Markman I,* 52 F.3d at 986; *see also* Pitney Bowes, 182 F.3d at 1308-09. Therefore, "consultation of extrinsic evidence is particularly appropriate to ensure that [the court's] understanding of the technical aspects of the patent is not entirely at variance with the understanding of one skilled in the art." Pitney Bowes, 182 F.3d at 1309. When a court relies on extrinsic evidence to assist with claim construction, and the claim is susceptible to both a broader and a narrower meaning, the narrower meaning should be chosen if it is supported by the intrinsic evidence. *See* Digital Biometrics v. Identix, 149 F.3d 1335, 1344 (Fed.Cir.1998). It is entirely proper for a court to accept and admit extrinsic evidence, such as an expert's testimony, to educate itself, but then base its construction solely on the intrinsic evidence. *See Mantech,* 152 F.3d at 1373.

[20] Further, the Federal Circuit has taken special note of the use by courts of a specific type of extrinsic evidence: dictionaries. In its *Vitronics* opinion, the Federal Circuit explained that although technical treatises and dictionaries are extrinsic evidence, judges are free to consult these resources at any time in order to get a better understanding of the underlying technologies. 90 F.3d at 1584 n. 6. The *Vitronics* court stated that judges may rely on dictionaries when construing claim terms as long as the dictionary definition does not contradict the definition found in, or ascertained by, a reading of the patent. *Id.*

2. Section 112***, para. 6***

When construing one of the claim elements in question in the '075 patent, the Court must use special rules for construing a means-plus-function claim element. When a patentee uses such an element, he or she is subject to the following statutory provision:

An element in a claim for a combination may be expressed as a means ... 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 specifications and

equivalents thereof.

35 U.S.C. s. 112, para. 6. *See also* Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1211 (Fed.Cir.1998).

[21] For an element in a means-plus-function format, the "means" term "is essentially a generic reference for the corresponding structure disclosed in the specification." Chiuminatta Concrete Concepts v. Cardinal Indus., 145 F.3d 1303, 1308 (Fed.Cir.1998). *See also* Mas-Hamilton Group, 156 F.3d at 1211 (quoting Chiuminatta Concrete Concepts, 145 F.3d at 1308). By using this format, a patentee is allowed to claim a function without expressing all of the possible means of accomplishing that function. *See* O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1583 (Fed.Cir.1997). "The price that must be paid for use of that convenience is limitation of the claim to the means [or acts] specified in the written description and equivalents thereof." *Id*.

[22] Thus, a claim expressed in means-plus-function language constitutes an exception to the rule that prohibits reading limitations from the specification into the claims. *See* Valmont Indus., Inc. v. Reinke Manuf. Co., 983 F.2d 1039, 1042 (Fed.Cir.1993). For example, when dealing with a means-plus-function claim, specific alternative structures mentioned in the specifications, and equivalents thereto, delineate the scope of the patent. *See* Mas-Hamilton Group, 156 F.3d at 1211; Serrano v. Telular Corp., 111 F.3d 1578, 1583 (Fed.Cir.1997). The alternative structures must be specifically identified, not just mentioned as possibilities, in order to be included in the patent's scope. *See* Fonar Corp. v. General Elec. Co., 107 F.3d 1543, 1551 (Fed.Cir.), *cert. denied,* 522 U.S. 908, 118 S.Ct. 266, 139 L.Ed.2d 192 (1997).

[23] The Court must analyze a means-plus-function claim element in two steps. First, the Court must determine the function of the means-plus-function limitation. *See* Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc., 248 F.3d 1303, 1311 (Fed.Cir.2001) (citing Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed.Cir.1999)). Second, the Court must "determine the corresponding structure described in the specification and equivalents thereof." *Id*.

3. *Infringement*

[24] Ordinarily, to prove infringement of a patent, the plaintiff must show by a preponderance of the evidence that every limitation of the claim asserted to be infringed has been found in an accused device or process, either literally or by an equivalent. *See* Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 796 (Fed.Cir.1990); Pennwalt v. Durand-Wayland, Inc., 833 F.2d 931, 935 (Fed.Cir.1987), *cert. denied,* 485 U.S. 961, 108 S.Ct. 1226, 99 L.Ed.2d 426 (1988) & 485 U.S. 1009, 108 S.Ct. 1474, 99 L.Ed.2d 703 (1988).

[25] [26] Absent a finding of literal infringement, a court could find that an accused device infringes by applying the judicially-created equitable doctrine of equivalents. *See* CAE Screenplates, 224 F.3d at 1318; Becton Dickinson, 922 F.2d at 797; ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1581 (Fed.Cir.1988); Pennwalt, 833 F.2d at 934. Under this doctrine, an accused device may still infringe a claim "if each and every limitation of the claim is literally or equivalently present." CAE Screenplates, 224 F.3d at 1318-19. "A claim limitation is 'equivalently present' in an accused device if there are only 'insubstantial differences' between the limitation and corresponding aspects of the device." Id. at 1319 (quoting Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512, 1517-18 (Fed.Cir.1995), *rev'd on other grounds,* 520 U.S. 17, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997)). Generally, infringement by equivalents is an issue of fact. *See id*. But, a district court may grant partial or complete summary judgment where the evidence is

such that no reasonable jury could determine two elements to be equivalent. *Id*.

C. VALIDITY

In the instant case, the Defendants challenge obliquely the validity of the ' 075 patent's claims 23 and 31. By statute, a patent is presumed valid. 35 U.S.C. s. 282. The Defendants must prove invalidity by clear and convincing evidence. *See* Apple Computer Inc. v. Articulate Sys., Inc., 234 F.3d 14, 26 (Fed.Cir.2000); Oney v. Ratliff, 182 F.3d 893, 895 (Fed.Cir.1999) (citing Finnigan Corp. v. International Trade Comm'n, 180 F.3d 1354 (Fed.Cir.1999)); American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1360 (Fed.Cir.), *cert. denied,* 469 U.S. 821, 105 S.Ct. 95, 83 L.Ed.2d 41 (1984). In the present procedural posture, "[s]ummary judgment is inappropriate if a trier of fact applying the clear and convincing standard could find for either party." Oney, 182 F.3d at 895.

[27] [28] [29] An accusation of anticipation is based on the requirement that an invention be novel or new. "The novelty requirement lies at the heart of the patent system." I DONALD S. CHISUM, CHISUM ON PATENTS s. 3.01 (Rel. No. 71, Sept. 1999) (hereinafter "CHISUM ON PATENTS"). To prove a defense of anticipation, the Defendants must show "that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee." Hoover Group, Inc. v. Custom Metalcraft, Inc., 66 F.3d 299, 302 (Fed.Cir.1995). *See also* MEHL/Biophile Int'l Corp. v. Milgraum, 192 F.3d 1362, 1365 (Fed.Cir.1999); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1349 (Fed.Cir.1998), *cert. denied,* 526 U.S. 1130, 119 S.Ct. 1804, 143 L.Ed.2d 1008 (1999); Hupp v. Siroflex of Am., Inc., 122 F.3d 1456, 1461 (Fed.Cir.1997). A challenger cannot prove anticipation "by combining more than one reference to show the elements of the claimed invention." CHISUM ON PATENTS s. 3.02. Thus, a prior patent or device must contain all of the elements and limitations in the disputed patent as arranged in the patented device. *See* C.R. Bard, 157 F.3d at 1349; Hoover Group, 66 F.3d at 303. But, "a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it." MEHL/Biophile Int'l, 192 F.3d at 1365. Anticipation is a question of fact, but may be decided on summary judgment if there is no genuine issue of material fact. Oney, 182 F.3d at 895.

D. INEQUITABLE CONDUCT

[30] [31] [32] The Defendants' allegations that Vandor withheld information from the PTO gives rise to an inequitable conduct defense. The defense of inequitable conduct arises from the patent applicant's duty to prosecute patent applications with candor, good faith, and honesty. *See Semiconductor Energy,* 204 F.3d at 1373 (citing Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed.Cir.1995)). " '[I]nequitable conduct includes affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive.' " *Id*. (quoting Molins, 48 F.3d at 1178). To win with such a defense, the Defendants must demonstrate by clear and convincing evidence that the information Vandor withheld was material and that its conduct was intended to deceive. *See id*. The Court must make two threshold determinations: whether the withheld references or misrepresentations satisfy a threshold level of materiality; and whether the applicant's conduct satisfies a threshold showing of intent to deceive. *See id*. If the evidence supports an affirmative finding on each of these elements, then the "[C]ourt balances materiality and intent to determine whether the equities warrant the conclusion that inequitable conduct occurred." *Id*. The question for the Court is "whether the applicant's conduct is so culpable that the patent should not be enforced." *Id*.

III. *DISCUSSION*

Essentially, the Defendants raise three issues: 1) whether the AFP Flange # 2 infringes claim 23 of the '075 patent; 2) whether the AFP Flange # 2 infringes claim 31 of the '075 patent; and 3) whether Vandor violated its duty of candor to the PTO. The Court will address each of the Defendants' arguments in turn.

A. INFRINGEMENT OF CLAIM 23

1. *Claim Construction*

[33] [34] As it must, the Court will start with claim construction of the first claim in dispute, claim 23. The Defendants assert that the AFP Flange # 2 does not infringe the '075 patent's claim 23 because the AFP Flange # 2 does not have a means for preventing rotation on either the radial core engaging surface or the axial core engaging surface. Specifically, the portion of claim 23 that the Defendants dispute reads:

wherein said first flange further comprises means for preventing rotation of the first flange with respect to the core, said means for preventing rotation being disposed on at least one of the radial core engaging surface and the axial core engaging surface.

'075 Patent, col. 12, *ll*. 33-37. The Defendants argue that this claim element, written in "means-plus-function" language, requires that the flange have a means for preventing rotation on both the radial core engaging surface and the axial core engaging surface. Further, the means extending from the radial core engaging surface must be "splines;" the means extending from the axial core engaging surface must be "spikes." The Defendants argue that these limitations are necessary because the written description provides only those disclosures. FN5 In other words, the Defendants assert that the Court should construe "means for preventing rotation" of claim 23 to require *both* a plurality of "spikes" extending from the axial core engaging surface and a plurality of "splines" on the radial core engaging surfaces.

FN5. The Court notes that the Defendants also apparently assert that radial core engaging surfaces shaped like splines were disclosed in the prior art. Therefore, the Court should construe claim 23 to exclude the prior art. Defs.' Mem. in Supp., at 21. However, as Vandor points out, a partially formed validity argument cannot force a claim construction that is contrary to the plain meaning of the claim language read in light of the specification. *See* Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed.Cir.1999). At this stage of the litigation, the Court will not use the Defendants' validity argument to change the plain meaning of the claim terms.

In contrast, Vandor asserts that the "means-plus-function" term in claim 23 requires that the antirotational means "be disposed on 'at least one of' two things, *i.e.*, the radial core engaging surface or the axial core engaging surface." Pl.'s Br. in Opp'n, at 9. Further, the means for preventing rotation may "be protrusions of any geometry that tend to penetrate or deform the core." *Id*. at 10.

[35] In construing the means-plus-function claim element, the Court must first determine the function of that element, *see* Medtronic, 248 F.3d at 1311, then ascertain the corresponding structure described in the specification and equivalents thereof. *See id*. " 'Structure disclosed in the specification is "corresponding" structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.' " *Id*. (quoting B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed.Cir.1997)).

The Court finds that in the context of the '075 patent, the function of the means element of claim 23 is

preventing rotation of the flange with respect to the core. Further, the means may be disposed on either a radial core engaging surface or an axial core engaging surface or both. In addition, a radial core engaging surface may be any protrusion that assists in chording off the end of the core. An axial core engaging surface may be a protrusion of any geometry that will tend to either penetrate or deform the core.

The Court starts with the language of the claim itself. Claim 23 clearly defines the function of the means: "wherein said first flange further comprises means for preventing rotation of the first flange with respect to the core." '075 Patent, col. 12, *ll*. 33-35. The specification supports this construction stating that an additional advantage of the flange design is the "means for preventing rotation of the flanges with respect to the core, which is a necessity for reel reliability in reel[s] having a core with a circular cross section." Id. col. 8, *ll*. 63-67. The inquiry now turns to the structure identified in the '075 patent to perform this function.

The claim language itself describes where the means is disposed: "on at least one of the radial core engaging surface and the axial core engaging surface." Id. col. 12, *ll*. 36-37. Although the Defendants argue that this phrase must be read to require an anti-rotational means on both the radial core engaging surface and the axial core engaging surface, such a reading would ignore the specific requirement in the claim that the means be disposed "on at least one of" the two elements.

The Court's construction is also supported by the '075 patent's specification. The patent reads: "[A]lternative embodiments may include other means for preventing rotation of the core which may be disposed on either the axial core engaging surface **58**, the radial core engaging surface **35**, or both." Id. col. 9, *ll*. 36-39. Clearly the preferred embodiment described by the @075 patent includes an anti-rotational means on both the radial core engaging surface and the axial core engaging surface. However, the language of the claim and the language of the specification support a broader interpretation of the scope of the antirotational means in claim 23. The Court will not ignore the language of the claim or the plain language of the specification, which in this case, supports a more broad reading of claim 23 than the Defendants suggest.

Arguably, the claim language suggests an alternative construction: the anti-rotation means is disposed ***both*** on at least one of the radial core engaging *surfaces* and on the axial core engaging surface. This construction, however, is not the construction that best fits with the disclosure in the claim and the specification. The claim itself uses the singular representation of "radial core engaging surface." Further, although the description of the preferred embodiment does talk in terms of a plurality of radial core engaging surfaces, *see* id. col. 9, *ll*. 6-7 ("a plurality of radially extending shoulders **34** that each terminate in a radial core engaging surface **35**"); id. col. 9, *ll*. 24-27 ("preferably all of the radial core engaging surfaces **35** include a spline **56** that inclines from the axial core engaging surface **58** to the radial engaging surface **35**"), the specification does not stop with that disclosure. In addition to the preferred embodiment, the '075 patent teaches that "alternative embodiments may include other means for preventing rotation of the core which may be disposed on either the axial core engaging surface **58**, the radial core engaging surface **35**, or both." Id. col. 9, *ll*. 36-39. This language illustrates that the patent inventors contemplated a single radial core engaging surface or even no radial core engaging surface at all. Moreover, when the specification reads in terms of multiple radial core engaging surfaces, it also reads to prefer that "all of the radial core engaging surfaces **35** ... engage the core **12** and cause chording," id. col. 9, *ll*. 24-29, rather than the more limiting phrase requiring anti-rotational means "on at least one of" the radial core engaging surfaces. Therefore, in light of the specification, the Court finds improper an alternative construction that requires the anti-rotation means to be disposed on both at least one of the radial core engaging surfaces and on the axial core engaging surface.

The Court also finds that the specification suggests a broader interpretation for the geometry of the anti-rotational means than "spikes" and "splines." The claim language itself is not specific about the geometry of the anti-rotational means; therefore, the Court must look to the specification. *See* Medtronic, 248 F.3d at 1311; O.I. Corp., 115 F.3d at 1583. The Court will look for specific alternative structures that are clearly linked to the anti-rotational means limitation. *See* Medtronic, 248 F.3d at 1311.

With respect to the radial core engaging surface, the specification reads:

[T]he underside of the first flange 14 includes a plurality of radially extending shoulders **34** that each terminate in a radial core engaging surface **35**.... [T]he radial core engaging surfaces **35** engage the core inner surface **12** ***a*.**

* * * * * *

To further inhibit core rotation, several, and preferably all of the radial core engaging surfaces **35** include a spline **56** that inclines from the axial core engaging surface **58** to the radial engaging surface **35**. When the reel **10** is assembled (see **FIG. 5**), the splines **56** engage the core **12** and cause chording of the circular-shaped core **12**. The chording inhibits rotation of the core **12** with respect to the first flange **14**.

* * * * * *

[A]lternative embodiments may include other means of preventing rotation of the core.... For example, the radial core engaging surface **35** may include a spike-like structure, or a hemispherical structure or other protrusion that assists in chording off the end of the core **12**.

Id. col. 9, *ll*. 5-9; *id*. col. 9, *ll*. 24-31; *id*. col. 9, *ll*. 35-41. The specification clearly indicates that the preferred structure of the radial core engaging surface is a spline. However, the specification also identifies a more general structure, a "protrusion that assists in chording off the end of the core 12." *Id*. col. 9, *ll*. 40-41. Because the claims that are dependent upon claim 23 make more specific reference to the structure of the anti-rotational means, *see* '075 Patent, col. 12, *ll*. 38-40 (claim 24 identifying axially extending spikes); id. col. 12, *ll*. 43-45 (claim 26 identifying radially extending splines), a broader interpretation of the structure of the radial core engaging surface in claim 23 is both warranted and supported by the specification. Therefore, the Court finds that the structure of the anti-rotational means disposed on the radial core engaging surface must be a protrusion that assists in chording off the end of the core.

With respect to the axial core engaging surface, the specification reads:

[T]he first flange **14** further includes an axial core engaging surface **58** that is disposed outward of and adjacent to the plurality of radially extending shoulders **34**. The axial core engaging surface **58** preferably includes a plurality of axially extending spikes **60**. The axially extending spikes **60**, which may suitably be conical in shape, engage the core **12** when the reel is assembled. Specifically, the axially extending spikes **60** either partially penetrate or at least deform the core **12** due to the tensile force of the single piece connectors **18**, **20**, and **21**, that urges the first flange **14** toward the core **12**. The partial penetration and or deformation of the core **12** by the spikes **60** inhibits movement of the core **12**, or in other words, rotation of the core **12**, with respect to the first flange **14**.

* * * * * *

It will be noted that use of ... the spikes **60** on the axial core engaging surface **58** represent a preferred embodiment. However, alternative embodiments may include other means of preventing rotation of the core which may be disposed on either the axial core engaging surface **58**, the radial core engaging surface **35**, or both. For example, the radial core engaging surface 35 may include a spike-like structure, or a hemispherical structure or other protrusion that assists in chording off the end of the core **12**. Similarly, the axial core engaging means may include structures other than conical spikes, including protrusions of nearly any geometry which will tend to either penetrate or deform the core **12**.

Id. col. 9, *ll*. 10-23; id. col. 9, *ll*. 33-44. Again, the specification clearly indicates a preferred structure for the anti-rotational means disposed on the axial core engaging surface: a conical spike. However, the '075 patent specification also discloses alternative structures for this means: "protrusions of nearly any geometry which will tend to either penetrate or deform the core **12**." Id. col. 9, *ll*. 43-44. Further, the claims dependent on claim 23 more specifically identify the structure of the anti-rotational means disposed on the axial core engaging surface, leaving room for an interpretation of claim 23 that is more broad. *See* id. col. 12, *ll*. 38-40; id. col. 12, *ll*. 48-50. Therefore, the Court finds that in the context of the '075 patent, the structure of the anti-rotational means disposed on the axial core engaging surface must be protrusions of nearly any geometry that will tend to either penetrate or deform the core.

In summary, the means for preventing rotation of the first flange with respect to the core may be disposed on at least one of the radial core engaging surface or the axial core engaging surface or both. Further, the anti-rotational means, if disposed on the radial core engaging surface, must be structured as a protrusion that assists in chording off the end of the core. The anti-rotational means, if disposed on the axial core engaging surface, must be structured as protrusions of nearly any geometry that will tend to either penetrate or deform the core.

2. ***Infringement of Claim 23***

[36] The Defendants assert that the AFP Flange # 2 does not have either spikes or splines, and it does not have any "anti-rotational means" on either the axial engaging surface or the radial engaging surface; therefore, the AFP Flange # 2 cannot infringe the '075 patent. Defs.' Mem. in Supp., at 15. Furthermore, the Defendants argue that the "AFP Flange # 2 merely has radial engaging surfaces (35)." Id.

In contrast, Vandor asserts that the AFP Flange # 2 "includes protrusions on one or both of the axial and radial engaging surfaces that deform the paperboard core." Pl.'s Br. in Opp'n, at 12. To assemble a reel with the AFP Flange # 2, "the paperboard core must be placed over protrusions that are located on the underside of [AFP] Flange # 2." Harrington Decl. para. 5. The protrusions "are configured to stretch the inner diameter (I.D.) of the paperboard core, thereby deforming the paperboard core." Id. para. 6. Vandor argues that the protrusions inhibit rotation of the paperboard core because they stretch the inner diameter of the core. Id. para. 7. Therefore, at the very least, there is a question of fact about whether the AFP Flange # 2 with its protrusions infringes claim 23 of the '075 patent.

The Court agrees with Vandor that there is a question of fact about whether the protrusions on the AFP Flange # 2 are either radial core engaging surfaces or axial core engaging surfaces or both. The Defendants do not dispute that the paperboard core fits over the protrusions of the AFP Flange # 2. Further, they do not dispute that the protrusions inhibit the rotation of the paperboard core with respect to the flange-the same purpose as the means described by claim 23. In essence, the Defendants admit that they consider the

protrusions radial core engaging surfaces. Therefore, if the protrusions are radial core engaging surfaces that "assist[ ] in chording off the core" or if the protrusions are axial core engaging surfaces that "tend to either penetrate or deform the core," then the AFP Flange # 2 infringes the '075 patent's claim 23. Vandor has not moved for summary judgment on infringement; therefore, the Court finds that there is a material question of fact on whether the protrusion on the AFP Flange # 2 infringe the '075 patent's claim 23 and Defendants' motion for summary judgment on infringement of claim 23 is DENIED.

B. INFRINGEMENT OF CLAIM 31

1. *Claim Construction*

[37] The Court will now turn to the parties' arguments regarding claim 31 of the '075 patent. The Defendants assert that the AFP Flange # 2 does not infringe claim 31 because it does not have radial support ridges that have an axial height sufficient to engage a second flange annular rim. Further, the Defendants aver that a rib is "an elongated structural element, specifically a structural element that is disposed on the surface of the flange between the inner and outer annual rims of the flange." Defs.' Mem. in Supp., at 18. The Defendants also argue that the posts it uses to register the flanges was commercially available long before Vandor received its patent; therefore, the Court should narrowly construe claim 31 of the '075 patent.

In contrast, Vandor asserts that the "posts" of the AFP Flange # 2 are either literally "ribs" when claim 32 is properly construed, or the equivalent of "ribs." Vandor argues that a rib is "any axially extending structure, preferably one that extends to the inner extreme of the outer annular rim of the flange." Pl.'s Br. in Opp'n, at 16. Vandor asserts that summary judgment for the Defendants on claim 31 is improper because the "posts" of the AFP Flange # 2 extend axially above the annular rim to engage a second flange; therefore the AFP Flange # 2 infringes claim 31 of the '075 patent.

The Court finds that in the context of the '075 patent, "rib" means an elongated structural element, running radially along the flange that axially extends to a height sufficient to engage a second flange's annular rim. The Court must start with the language of the claim itself. *See* Pitney Bowes, 182 F.3d at 1305; Comark, 156 F.3d at 1186. Claim 31 reads, in pertinent part:

A flange ... comprising:

an annulus having at least one annular rim, said annular rim extending axially from a first side of the annulus;

* * * * * *

a plurality of ribs disposed on said first side of the annulus, said plurality of ribs having an axial height sufficient to engage a second flange annular rim that axially extends from a first side of a second flange to facilitate registration of a reel assembly including the flange with a second reel assembly including the second flange and to retain the reel assembly in registration with the second reel assembly.

'075 Patent, col. 12, *ll*. 62-67 to col. 13, *ll*. 1-8. Starting with the plain meaning of the word, "rib" connotes an elongated piece that runs along the "length" of something else. Webster's Dictionary defines rib as "an elongated elevation running the length of an object." Webster's Third New Int'l Dictionary 1950 (Merriam-Webster, Inc.1981). In the context of a flange with an annulus, the length would be the radius of the flange. Furthermore, the claim language itself requires that a rib axially extend to a height sufficient to engage a

second flange's annular rim. This latter requirement is particularly pertinent to the purpose of the rib, "to facilitate registration of a reel assembly ... with a second reel assembly...." '075 Patent, col. 13, *ll*. 4-7. Based on this analysis, the claim language seems to support the following definition of rib: an elongated structural element, running radially along the flange that axially extends to a height sufficient to engage a second flange's annular rim.

The patent specification seems to support such a construction. In one segment discussing ribs, the patent teaches:

The first flange **14** also includes a plurality of ribs **54** that may extend axially above the annular rims **24** and **26**. The plurality of ribs **54** are preferably disposed such that at least a portion of each of the plurality of ribs extends to the inner extreme of the outer annular rim **26**. The plurality of ribs **54** may suitably comprise an axial extension of one or more of the radial support ridges **52**. As will be discussed further below, the plurality of ribs **54** facilitates the stacking reels by holding the first flange **14** in registration with a flange of another reel, not shown, that is stacked on top of the reel **10**.

Id. col. 4, *ll*. 43-53. Here the patent talks about the ribs extending to the inner extreme of the outer rim. Id. col. 4, *ll*. 45-46. This phrase implies that a rib has some length in the radial direction because in the context of a flange, a structure can only *extend* to the inner extreme of the outer rim if it starts somewhere toward the center of the circular flange.

The second segment discussing ribs in the preferred embodiment confirms this implication. The patent reads:

[I]n the exemplary embodiment described herein, the plurality of ribs **54** are disposed such that they extend radially to, but inside of, the outer annular rim **26**. The plurality of ribs **54** have a height that exceeds the height of the inner annular rim **24** and the outer annular rim **26.**

Id. col. 7, *ll*. 9-13. Here the patent teaches that the ribs "extend radially to, but inside of, the outer annual rim **26**." A structure that can "extend radially to" another structure must have some length in the radial direction. The remaining language in the specification that refers to ribs does not change this analysis. The patent reads: "It will be noted, however, that the plurality of ribs **54** may alternatively be configured to engage the inner annular rim **24**, or an annular rim disposed elsewhere on the first side of the first flange **14**." Id. col. 7, *ll*. 29-32. This requirement broadens where a rib structure can be placed, but adds nothing about the geometry of the rib itself.

Vandor argues that the specification merely suggests that the ribs may be extensions of the radial support ridges, but a " 'rib' may be any axially extending structure, preferably one that extends to the inner extreme of the outer annular rim of the flange." Pl.'s Br. in Opp'n, at 16. But Vandor's construction ignores the language of the claims and the specification that imply that the geometry of a rib has a length in the radial direction of the flange. Vandor's construction makes extension in the radial direction a preference; however, the plain meaning of rib and the patent specification point toward a structure that necessarily extends in the radial direction as well as the axial direction. Furthermore, claim 31 is specific that the structure is a "rib;" the patentees did not use the broader term "protrusion" or even "any structure" in writing the claim. Therefore, the Court finds that the plain meaning of "rib," or an elongated structure, is the best starting point for construction of the claim.

In summary, the Court finds that the plain meaning of "rib" in the context of the '075 patent means an elongated structural element, running radially along the flange that axially extends to a height sufficient to engage a second flange's annular rim.

2. *Infringement of Claim 31*

In order for the AFP Flange # 2 to literally infringe claim 31 of the '075 patent, it must have ribs as that term has been construed by the Court. Therefore, the AFP Flange # 2 must have an elongated structural element, running radially along the flange that axially extends to a height sufficient to engage a second flange's annular rim. *See* Part III.B.1. The AFP Flange # 2 has structural support elements that extend from the inner rim to the outer rim of the flange. Defs.' Exh. H, Photograph, AFP Flange # 2. However, those structural support elements do not extend sufficiently to engage any rim of a second flange. The AFP Flange # 2 also has posts attached to the outer rim, apparently set between each of the structural support elements. Id. Those posts do extend sufficiently to engage a rim of a second flange; however, they are not elongated structural elements, running radially along the flange. Therefore, the Court finds that there is no genuine issue of material fact that the AFP Flange # 2 literally infringes claim 31 of the '075 patent.

[38] [39] Even if the AFP Flange # 2 does not literally infringe claim 31, the Court must consider whether the flange infringes the '075 patent under the doctrine of equivalents. Under the doctrine of equivalents, the AFP Flange # 2 may still infringe claim 31 if "ribs" are equivalently present in the flange. *See* CAE Screenplates, 224 F.3d at 1318-19. Ribs would be "equivalently present" in the AFP Flange # 2 "if there are only 'insubstantial differences' between the limitation and corresponding aspects of the device." Id. at 1319 (quoting Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512, 1517-18 (Fed.Cir.1995), *rev'd on other grounds,* 520 U.S. 17, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997)). Generally, infringement by equivalents is an issue of fact. *See id.*

Vandor argues that the AFP Flange # 2's posts are substantially equivalent to the ribs defined in the '075 patent because they have an axial height that is sufficient to engage a rim of another flange, they are integrally formed with the flange, they extend to the edge of the annular rim of the flange and they accomplish the identical purpose, registration of stacked reels, achieving the same result. Pl.'s Br. in Opp'n, at 17-18.

The Defendants counter that AFP simply adopted the industry standard practice,commercially available since at least 1993, of placing posts along the rim of the flange to facilitate stacking. Defs.' Mem. in Supp., at 20. Because the doctrine of equivalents does not extend to cover an accused device in the prior art, the Defendants continue, the AFP Flange # 2 does not infringe claim 31 under the doctrine of equivalents. Id. (citing Pennwalt Corp. v. Durand-Wayland, Inc., 833 F.2d 931, 934, n. 1 (Fed.Cir.), *cert. denied,* 485 U.S. 961, 108 S.Ct. 1226, 99 L.Ed.2d 426 (1988), 485 U.S. 1009, 108 S.Ct. 1474, 99 L.Ed.2d 703 (1988) (*en banc*)).

[40] The Court is persuaded that there is a genuine issue of fact about whether the AFP Flange # 2 infringes claim 31 under the doctrine of equivalents. The Court starts with the premise that the doctrine of equivalents will not extend to cover an accused device in the prior art. *See* Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 900 (Fed.Cir.), *cert. denied,* 469 U.S. 857, 105 S.Ct. 187, 83 L.Ed.2d 120 (1984). In support of their claim that posts were indeed used commercially at a date prior to the '075 patented invention, the Defendants offer declarations of several individuals that flanges with posts were commercially available since at least 1993 and photographs of a flange mold dated 1993; the mold seemingly contains such posts.

See "Defs.' Exh. C, Photographs, 12" Flange Mold, Built By Rad-Cam, April 1993; Ripplinger Decl. para.para. 5-10; Rafter Decl. para.para. 4-7; Wilson Decl. para. 6.

However, Vandor offers evidence to rebut the declared allegations, as well as evidence that calls into question whether the posts were incorporated in the mold design when the mold was originally made in 1993. Pl.'s Br. in Opp'n, at 21-24 (citing Rafter Decl. para. 4; Rafter Dep., at 25, 17-18; Elder Decl. para.para. 34-35; Cox Decl. para.para. 10-12; Ripplinger Decl. para.para. 5-7). In particular, Vandor suggests that the mold, which is the only unbiased piece of evidence the Defendants offer, was admittedly modified after its initial production date to produce a reel that incorporated a stacking feature. *See* Ripplinger Decl. para.para. 5-7. Therefore, it is unclear whether the prior art actually taught a stacking feature in 1993 or some other date prior to the '075 patented invention. In the face of this factual dispute, the Court cannot find that the doctrine of equivalents would not apply in this case as a matter of law.

In summary, the Court finds that there is a material issue of fact on whether the AFP Flange # 2 infringes claim 31 under the doctrine of equivalents; therefore, the Defendants' motion for summary judgment on infringement of claim 31 is DENIED.

C. INEQUITABLE CONDUCT

The Defendants allege that Vandor intentionally failed to disclose material information to the PTO when it prosecuted the application that matured into the '075 patent. The Defendants assert that Vandor failed to disclose prior art to the PTO that used posts to facilitate stacking and prior art that used splines on the radial core engaging surfaces to prevent rotation. Defs.' Mem. in Supp., at 22-23. Specifically, the Defendants allege that Vandor failed to disclose U.S. Patent No. 5,464,171 (the "Ripplinger patent") issued to C. Robert Ripplinger ("Ripplinger"), which disclosed splines on radial core engaging surfaces to prevent rotation. Id. at 23. The Court will address each of the Defendants' allegations in turn.

1. *Failure to Disclose "Posts"*

[41] [42] The Defendants' first argument regarding inequitable conduct is Vandor's failure to disclose posts that facilitate stacking in the prior art. Wilson declares that prior to Vandor's invention of the '075 patented reel, Vandor obtained examples of commercially available plastic reels and examined them. Wilson Decl. para.para. 4-5. He also avers that Elder, a named inventor on the '075 patent, reviewed and examined the posts used in the industry to facilitate stacking. Id. Furthermore, after filing its application with the PTO, Vandor required its employees to sign a non-disclosure and non-compete agreement regarding proprietary information about Vandor's plastic reels. Id. para. 7. Wilson alleges he was fired because he knew that Vandor had improperly copied the stacking feature from prior art designs and withheld the information from the PTO. Id. The Defendants also rely upon pictures of a prior art mold dated 1993 and some drawings of that mold referring to stacking lugs to support their allegations that stacking features for flanges were commercially available well before the '075 patent was issued. *See* "Defs.' Exh. C, 12" Flange Mold, Built by Rad Cam, April 1993; Pl.'s Exh. I, Mossberg/Hubbard, Drawing No. 54-9-237*. FN6

FN6. The Court notes that Vandor has moved to strike allegations by the Defendants that Vandor and its counsel purposefully withheld the Mossberg drawing from this Court. However, the Court finds that the language used does not rise to an inflamatory level; therefore, it need not be striken. The plaintiff's verified motion to strike is hereby DENIED.

In contrast, Vandor asserts that the existence of prior art in this case is questionable at best; but in no manner have the Defendants attempted to corroborate self-serving declarations with independent documentary evidence. Pl.'s Br. in Opp'n, at 19-21 (citing Finnigan Corp. v. International Trade Comm'n, 180 F.3d 1354, 1367 (Fed.Cir.1999); FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1415 (Fed.Cir.1987); *K&K Jump Start/Chargers, Inc. v. Schumacher Elec. Corp.,* 82 F.Supp.2d 1012, 1017, 1023 (W.D.Mo.2000); Elkhart Brass Mfg. Co. v. Task Force Tips, Inc., 867 F.Supp. 782, 786 (N.D.Ind.1994)). Furthermore, the '075 patent inventors, Elder and Cox, deny in their declarations that "they 'examined plastic flanges previously marketed by others' that contained stacking features." Id. 26-27 (offering a comparison of Wilson Decl. para. 5 with Cox Decl. para.para. 10-11 and Elder Decl. para.para. 34-35). Moreover, Vandor alleges that Wilson's statements "leave[ ] to inference the Defendants' apparent position that Vandor (a) saw the posts, (b) appreciated their significance as a stacking feature, (c) copied them, and (d) failed to disclose the prior flanges *with the intent to mislead the patent office*." Id. at 27 (emphasis in original). Therefore, Vandor argues that at a minimum, there is a question of fact on whether, by clear and convincing evidence, Vandor intentionally withheld information from the PTO about prior art stacking posts.

[43] The Court agrees with Vandor that, at a minimum, there is a material question of fact on inequitable conduct with respect to prior art stacking features. When confronted with a defense of inequitable conduct, the Court must make two threshold determinations: whether the withheld references satisfy a threshold level of materiality; and whether the applicant's conduct satisfies a threshold showing of intent to deceive. *Semiconductor Energy,* 204 F.3d at 1373. Applying this method to the Defendants' allegation that Vandor withheld prior art references that disclosed posts to facilitate stacking, the Court starts with materiality of the post feature in the prior art. The post feature is likely relevant to the scope of the '075 patent's claim 31 that discloses a feature designed to facilitate stacking of flanges. The obviousness or anticipation of such a claim clearly rests on the breadth of disclosurein any prior art. In the section on infringement of claim 31, the Court found that the facts surrounding the existence of a post feature in the prior art are sufficiently disputed to create a genuine issue of material fact.

Further, the circumstantial evidence on whether Vandor intentionally withheld the prior art flanges with posts is sufficiently disputed to create a genuine issue of fact on this issue as well. Although the Defendants offer Wilson's declaration in support of its contention that Vandor reviewed prior art flanges with stacking posts and sought to hide its knowledge of that prior art by forcing its employees to sign nondisclosure agreements and/or firing them, Vandor offers conflicting declarations by the '075 patent inventors. *Compare* Wilson Decl. para. 5 *with* Elder Decl. para.para. 34-35 and Cox Decl. para.para. 10-11. On this conflicting evidence, the Court cannot conclude that there is no question of material fact on whether Vandor had the requisite intent to deceive the PTO.

As a result of these findings, the Court DENIES the Defendants' motion for summary judgment on the issue of inequitable conduct with respect to the posts. Likewise, with the plethora of disputed facts, the Court is unwilling to grant Vandor summary judgment on this issue as well.

2. ***Failure to Disclose the Ripplinger Patent***

[44] With respect to the Defendants' allegation that Vandor intentionally withheld the Ripplinger patent from the PTO during prosecution of the '075 patent, the Court finds that summary judgment in favor of Vandor is appropriate. In support of their allegations that the Ripplinger patent discloses anti-rotational means in the form of radial core engaging splines, the Defendants offer Ripplinger's declaration. Ripplinger avers that the

Ripplinger patent specifically discloses splines at column 20, lines 22 through 36:

In addition, however, the splines 228 are preferably molded on the channel wall 212 as shown in FIGS. 25 and 31A-31B. These splines 228 provide both resilience and a certain amount of strain while also providing a high load in a localized area to grip the tube 182 inside the channel 210. Splines may also be molded as part of the support sleeve 192 as described above. Since extrusion produces more accurate outside dimensions, generally, for plastic tubes 182, and wrapping around a mandrel produces more accurate inside dimensions for paperboard tubes 182, splines 228 are preferably formed to contact the least accurate surface of a tube 182, whatever is material. Thus, splines 228 are located as shown on the channel wall 212 in FIG. 31A and on the support sleeve 192 in FIG. 31B, according to the configuration of the tube 182.

Ripplinger Decl. para. 14. Ripplinger avers that on November 2, 1993, he filed the application that matured into the Ripplinger patent; the Ripplinger patent issued on November 7, 1995. Id.

In contrast, Vandor asserts that although "splines" may have been disclosed in the Ripplinger patent, the Ripplinger patent did not teach the use of splines to prevent rotation of the flange with respect to the core as taught by the ' 075 patent. Pl.'s Resp. to Defs.' Statement of Undisputed Fact para. 17. Moreover, Vandor avers that the Defendants have failed to offer any evidence that the '075 patent inventors knew about the Ripplinger patent and intentionally withheld its disclosure from the PTO. Pl.'s Br. in Opp'n, at 28-29.

The first question for the Court is whether the disclosure in the Ripplinger patent was material to the subject matter in the '075 patent. *See Semiconductor Energy,* 204 F.3d at 1373. As described in more detail in Part III.A.1, the '075 patent discloses splines as the preferred embodiment for the antirotational means in claim 23. '075 Patent, col. 12, *ll*. 33-37; id. col. 9, *ll*. 5-9; id. col. 9, *ll*. 24-31. The Ripplinger patent teaches a spool that is comprised in pertinent part by two portions, each having a flange, such portions configured "for receiving an elongate material for retention between said flanges." Ripplinger Patent, col. 22, *ll*. 15-19. The specification teaches that the parts where the elongated material is received preferably has splines molded into it to "provide both resilience and a certain amount of strain while also providing a high load in a localized area to grip the tube **182** inside the channel **210**." Id. col. 20, *ll*. 24-26. Arguably, the splines in the Ripplinger patent perform the anti-rotational function described by the '075 patent because the Ripplinger patent splines grip the tube inside the channel similarly to how the radial core engaging means "chords" the core. In that sense, the Ripplinger patent may have made obvious the antirotational means described by the '075 patent. Arguably then, the Ripplinger patent was material to the patentability of the '075 patent invention.

However, the Defendants make no showing that Vandor or the patentees knew about the Ripplinger patent's disclosures, assessed their materiality and then intentionally left the Ripplinger patent undisclosed to the PTO. Although Wilson's declaration states that commercially available prior art samples had "posts to interlock with and limit rotation of other flanges," Wilson Decl. para. 5, and that Vandor and the '075 patent inventors saw those commercially available flanges, Wilson does not allege that those prior art samples had splines for preventing rotation of the flange with respect to the core.

Furthermore, the Ripplinger declaration states that Spooltech manufactured, distributed and sold flanges that had splines as early as 1993. Ripplinger Decl. para.para. 12-13 (citing "Defs.' Exh. B, Photograph, Unidentified Reel; Defs.' Exh. C, Photographs, 12" Flange Mold, Built By Rad-Cam, April 1993). However, the Defendants offer no facts that connect the Spooltech reel to Vandor or the '075 patent inventors at the time of the patent application or prior to the time Vandor applied for its patent. Arguably, the two years

between issuance of the Ripplinger patent and the application for the '075 patent implies that Vandor or the '075 patent inventors should have known about the technology disclosed in the Ripplinger patent. Even allowing the Defendants this inference, they have not shown by clear and convincing evidence that Vandor or the '075 patent inventors intended to deceive the PTO by failing to disclose the Ripplinger patent.

In summary, the Defendants have failed to show by clear and convincing evidence that Vandor or the '075 patent inventors intended to deceive the PTO by failing to disclose the Ripplinger patent in the application that matured into the '075 patent. For this reason, the Defendants' motion for summary judgment on inequitable conduct with respect to the anti-rotational means is DENIED. Further, Vandor's request for summary judgment in its favor on this issue is GRANTED.

IV. *CONCLUSION*

The Court has found that material questions of fact exist on the issues of whether the Defendants have literally infringed claim 23 of the '075 patent, whether the Defendants have infringed the '075 patent's claim 31 under the doctrine of equivalents and whether Vandor, the plaintiff, engaged in inequitable conduct before the Patent and Trademark Office by failing to disclose prior art that had posts to facilitate stacking. For these reasons, the Defendants' motion for partial summary judgment is **DENIED**. Further, the Court has found that the Defendants have failed to show by clear and convincing evidence that Vandor engaged in equitable conduct before the Patent and Trademark Office by failing to disclose the Ripplinger patent. For this reason, the Defendants' motion for partial summary judgment on this issue is **DENIED;** however, summary judgment is **GRANTED** in favor of the plaintiff on this issue.

With regard to supplemental matters related to the Defendants' motion for partial summary judgment, the Defendants' objection to the plaintiff's surreply is **OVERRULED**. Further, the plaintiff's verified motion to strike is **DENIED**.