


Thyng, U.S. Magistrate Judge

I. INTRODUCTION

This is a patent case. On October 29, 2007 Innovative Patents, L.L.C. (“Innovative”)¹ and Forcefield, LLC (“Forcefield”)² (collectively “plaintiffs”) filed suit alleging that Brain-Pad, Inc. (“Brain-Pad” or “defendant”)³ infringes U.S. Patent No. 7,234,174 (“the ‘174 patent”) by making, using, selling and offering for sale within the United States apparatuses for enhancing force absorption and dissipation of forces, including the Brain-Pad Impact Protective Headband (the “accused device” or “Brain-Pad device”).⁴ On January 4, 2008 Brain-Pad filed its answer asserting numerous defenses and counterclaims, and on February 19, 2008 filed an answer to the complaint with amended counterclaims for, *inter alia*, declaratory judgment that the ‘174 patent is invalid and unenforceable.⁵

Pursuant to *Markman v. Westview Instruments, Inc.*⁶ and local practice, oral argument was held on December 17, 2009, regarding the parties’ claim interpretations. The court set forth its construction memorandum of the disputed claim terms of the

¹ Innovative is a limited liability company duly organized and existing under the laws of the State of New Jersey, with a principal place of business in Hackensack, New Jersey.

² Forcefield is a limited liability company duly organized and existing under the laws of the State of New Jersey, with a principal place of business in Hackensack, New Jersey.

³ Brain-Pad is a corporation duly organized and existing under the laws of the State of Pennsylvania, with a principal place of business in Conshohocken, Pennsylvania.

⁴ D.I. 1 (Complaint).

⁵ D.I. 14; D.I. 38. Plaintiffs filed their answer to defendant’s counterclaims on March 17, 2008. D.I. 45.

⁶ 52 F.3d 967 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996).

patent-in-suit on January 13, 2010.⁷ Currently before the court are plaintiffs' motion for summary judgment of patent infringement⁸ and defendant's cross motion for summary judgment of non-infringement.⁹ Having considered the evidence of record and the arguments of the parties, this court will grant defendant's motion for summary judgment of non-infringement as to all claims of the '174 Patent, and deny plaintiffs' motion for summary judgment of infringement in its entirety.

II. BACKGROUND OF THE INVENTION

The '174 patent, entitled "Apparatus for Enhancing Absorption and Dissipation of Impart Forces for Sweatbands" was filed on November 17, 2005 and issued to inventor Dr. Carl J. Abraham on June 26, 2007.¹⁰ The patent was subsequently assigned to Innovative. The patent's abstract describes the invention as follows:

A sweatband designed to be worn on a user for usage in a variety of sporting activities. The sweatband comprises inserts for the purpose of protecting the user, which may be permanently placed or removable. In the preferred mode, the inserts are polymeric and function to absorb and dissipate impact forces with which the user comes in contact. Importantly, the inserts may be strategically placed within the sweatband, such as in the areas most vulnerable to concussion or injury upon impact. In an alternate embodiment, the polymeric inserts may be removed from the sweatband. In total, the invention provides a novel, lightweight means to protect the athlete, while effectively functioning to absorb perspiration.¹¹

The claimed invention "is a sweatband for sporting activities that is designed to absorb both perspiration and impact forces."¹² The sweatband generally consists of

⁷ D.I. 153 (*Markman* Order).

⁸ D.I. 160 (Motion for Summary Judgment of Infringement).

⁹ D.I. 157 (Motion for Summary Judgment of Non-Infringement).

¹⁰ The '174 patent is a continuation-in-part of application No. 10/225,866, filed on August 22, 2002, and issued as U.S. Patent No. 6,675,395 on January 13, 2004.

¹¹ '174 patent, Abstract.

¹² '174 patent, 1:12-14.

“protective inserts of foam padding or a semi-rigid material, within a generally tubular perspiration-absorbing fabric.”¹³ The sweatband functions “to effectively absorb perspiration in the traditional sense, as well as provide an appropriate level of ventilation and breathing, reducing heat in the process.”¹⁴

Claim 1 is the only independent claim in the ‘174 Patent. The claims-at-issue (with terms construed by the court underlined) recite:

1. An apparatus for enhancing absorption and dissipation of forces for sweatbands comprising:

a soft, pliable sweatband of a generally annular configuration, the sweatband further comprising an exterior portion and interior portion,

the sweatband designed to be placed around the head of a user, from the forehead to back of the head,

at least one insert permanently placed within the sweatband, the insert relatively thin in nature and positioned to protect at least the forehead area of a user, the insert curved in configuration, the insert of sufficient length to protect an intended area and of sufficient width, the sweatband reversible, functioning to allow the interior portion to dry while the exterior portion is placed against the user,

the apparatus functioning to absorb perspiration and absorb and dissipate impact forces, with only remaining forces distributed to the user.

2. The apparatus as described in claim 1, wherein the insert is soft, pliable padding material with consistent memory.

3. The apparatus as described in claim 1, wherein the insert is a semi-rigid polymeric material.

4. The apparatus as described in claim 3, wherein the polymeric material is selected from the group [sic] consisting of polyurethane, polymers, and co-polymers, alone or in combination.

¹³ ‘174 patent, 3:45-47.

¹⁴ ‘174 patent, 3:63-66.

5. The apparatus as described in claim 1, wherein the insert comprises apertures which function to allow air to pass therethrough.
6. The apparatus as described in claim 1, wherein ends of the sweatband are permanently affixed to one another and the sweatband is slid over an area intended to be protected.
7. The apparatus as described in claim 1, wherein the apparatus is utilized in activities selected from the group consisting of soccer, basketball, football, hockey, baseball, softball, lacrosse, skiing, horseback riding, climbing, skateboarding, roller skating, cycling, motorcycling, automobile racing, and snowmobiling.
9. The apparatus as described in claim 1, wherein the sweatband may be washed with the insert permanently in place.

In its *Markman* Order, this court construed the above-underlined terms as follows:

“Sweatband” means “a band of absorbent material worn around the forehead to absorb perspiration.”¹⁵

“Relatively thin in nature” means “the thickness of the insert, varying according to need, i.e., to better protect the user.”¹⁶

“Curved in configuration” means “preformed, arcuate and having first and second ends.”¹⁷

“An intended area” means “at least one insert can be positioned in a variety of places within the sweatband, including covering the entire horizontal circumference of the head.”¹⁸

“Consistent memory” means “consistently returns to its manufactured shape after

¹⁵ D.I. 153 at 2.

¹⁶ *Id.* at 3.

¹⁷ *Id.* at 4.

¹⁸ *Id.* at 5.

deformation.”¹⁹

“Semi-rigid” means “neither stiff nor pliable.”²⁰

“Apertures” means “any openings in the insert, regardless of type or orientation.”²¹

III. DISCUSSION

A. Legal Standards

Under Rule 56(c) of the Federal Rules of Civil Procedure, summary judgment is appropriate “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.” A fact is material only if it “might affect the outcome of the suit under the governing law.”²² A dispute about a material fact is genuine only if “the evidence is such that a reasonable jury could return a verdict for the non-moving party.”²³ Summary judgment is therefore appropriate in patent infringement cases “when it is apparent that only one conclusion regarding infringement could be reached by a reasonable jury.”²⁴ The moving party bears the burden of proving that no genuine issue of material fact is in dispute.²⁵ However, if the non-moving party fails to make a sufficient showing on an

¹⁹ *Id.* at 7.

²⁰ *Id.*

²¹ *Id.* at 8.

²² *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247 (1986).

²³ *Id.* at 248.

²⁴ *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1323 (Fed. Cir. 2001).

²⁵ *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 586 n.10 (1986).

essential element of her case as to which she has the burden of proof, the moving party is entitled to judgment as a matter of law.²⁶ Summary judgment of infringement requires a plaintiff to establish that the accused device infringes one or more claims of the patent by a preponderance of evidence.²⁷ Conversely, summary judgment of non-infringement is appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement.²⁸

A patent infringement analysis contains two steps: construing the asserted patent claims and comparing the construed claims to the accused device.²⁹ A patent owner may prove infringement under either of two theories: literal infringement or the doctrine of equivalents. Determination of infringement under either theory is a question of fact.³⁰ Literal infringement occurs where "every limitation in a patent claim is found in an accused product, exactly."³¹ Infringement under the doctrine of equivalents, on the other hand, occurs where the accused product embodies every element of a claim either literally or by an equivalent.³² This doctrine allows the patentee to claim insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes.³³ A patentee may invoke the doctrine

²⁶ *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986).

²⁷ *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001).

²⁸ *Telemac*, 247 F.3d 1323.

²⁹ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995).

³⁰ *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

³¹ *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995).

³² *See generally Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997).

³³ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 734 (2002).

where the accused device “performs substantially the same function in substantially the same way to obtain the same result.”³⁴

A patentee may be prevented from invoking the doctrine of equivalents, however, by prosecution history estoppel. Prosecution history estoppel requires that the claims of a patent be interpreted in light of the proceedings in the Patent and Trademark Office (PTO) during the application process.³⁵ Estoppel arises when an amendment is made to secure a patent and that amendment narrows the patent's scope.³⁶ In such cases, the “amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim,” and the patentee bears the burden of showing that the amendment does not surrender the particular equivalent in question.³⁷ The Supreme Court has recognized three situations in which this presumption barring equivalents would be overcome: (1) the equivalent was unforeseeable at the time of the application; (2) the rationale underlying the patentee's amendment bears no more than a tangential relation to the equivalent; or (3) the patentee could not otherwise reasonably be expected to have described the insubstantial substitute.³⁸ Applicability of prosecution history estoppel is a question of law.³⁹

³⁴ *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950).

³⁵ *Festo*, 535 U.S. at 734.

³⁶ *Id.* at 736.

³⁷ *Id.* at 740.

³⁸ *Id.* at 740-41.

³⁹ *Panduit Corp. v. HellermannTyton Corp.*, 451 F.3d 819, 826 (Fed. Cir. 2006) (citing *Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1378 (Fed. Cir. 2005)).

B. Direct Infringement

Summary judgment of non-infringement is appropriate in this case because no reasonable jury could find that the Brain-Pad insert is “curved in configuration” as required by Claim 1 of the ‘174 Patent.

1. Claim 1

Claim 1 of the ‘174 Patent requires the insert of the accused device to be “curved in configuration.” In its *Markman* ruling, this court construed “curved in configuration” to mean “preformed, arcuate and having first and second ends.”⁴⁰ The Brain-Pad insert, however, is not preformed and arcuate—it is a flaccid, shapeless loop of perforated elastomeric material. Plaintiffs suggest that an “arcuate” shape is imparted to the Brain-Pad insert because it is “preformed” into a loop, but a loop in this case cannot be equated with an arc. The Brain-Pad insert, being flaccid, is only “arcuate” when set carefully on its long side or placed on a round substrate. When set on its short side or held in the hand, it falls flat. Literal infringement cannot be found here merely because the insert assumes a curved shape when placed in the correct orientation or on the correct substrate.

Nor does the Brain-Pad insert have first and second ends. Plaintiffs protest that the Brain-Pad insert begins life as an elastomeric strip with two ends, which are only later joined together for placement in the sweatband. Claim 1 of the ‘174 Patent, however, concerns only the finished accused device; it is irrelevant that the insert had first and second ends before being completed. Plaintiffs further rely on a separate term

⁴⁰ D.I. 153 at 4.

from Claim 1, “intended area,” which this court construed to mean “at least one insert can be positioned in a variety of places within the sweatband, including covering the entire horizontal circumference of the head.”⁴¹ Plaintiffs contend that the inset need not have first and second ends because it may also cover the entire horizontal circumference of the head. Yet an insert may provide full horizontal coverage of the head while still having first and second ends. Moreover, this court’s construction of “curved in configuration” clearly requires first and second ends of the insert no matter how great its horizontal coverage. Plaintiffs cannot eliminate one required limitation of the ‘174 Patent by showing that a different limitation is met. Based on this evidence, no reasonable jury could find Claim 1 of the ‘174 Patent literally infringed by the Brain-Pad device.

Plaintiffs also assert that the Brain-Pad insert infringes under the doctrine of equivalents because, provided it is not stiff, an insert with “pre-curvature” is functionally indistinguishable from a flat insert that is given curvature from the sweatband or the user’s head. The court, however, finds this argument barred by prosecution history estoppel. During prosecution before the PTO, the patent examiner rejected Claim 1 of the ‘174 Patent under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,397,399 issued to Lampe et al. (“the Lampe Patent”) and U.S. Patent No. 5,963,989 issued to Robertson (“the Robertson Patent”).⁴² Dr. Abraham amended his application three times in response.⁴³ Each of these amendments made the following changes to

⁴¹ *Id.* at 5.

⁴² See D.I. 171 at DA-333.

⁴³ D.I. 171 at DA-338; DA-353; DA-370.

Claim 1:

. . . at least one insert permanently placed within the sweatband, the insert relatively thin in nature and positioned to protect at least the intended forehead area of the user, the insert curved in configuration⁴⁴

Dr. Abraham offered a consistent explanation for these changes in remarks accompanying his amendments:

In view of the amendment herein, it is respectfully submitted that the claims *more particularly point out and distinctly claim* the shock absorbing sweatband apparatus of the present invention. . . . [I]ndependent claim 1 has been written *to more particularly describe* that the sweatband is designed to be placed around the head of the user, from the forehead to the back of the head, that the at least one insert is positioned to protect at least the forehead area of a user, that the at least one insert is permanently placed within the sweatband; that *the at least one insert is curved in configuration* . . . , and that the sweatband is reversible functioning to allow the interior portion to dry while the exterior portion is placed against the head of the user.⁴⁵

The undisputed facts thus show that Dr. Abraham's amendments, made to secure the patent over a rejection for obviousness, narrowed the scope of Claim 1 by introducing a new limitation on the curvature of the insert. His amendment is therefore presumed to be a general disclaimer of the territory between the original claim and the amended claim, and the burden is on plaintiffs to overcome that presumption.

Plaintiffs have not carried this burden. They insist that any subject matter disclaimed during prosecution was confined to limitations like "reversibility" and "permanently placed" that were only tangentially related to the curvature of the insert. This court cannot agree. The "tangential relationship" exception to the rebuttable

⁴⁴ D.I. 171 at DA-341; DA-356; DA-374. Strikeouts indicate removed text; underlines indicate added text.

⁴⁵ D.I. 171 at DA-348; DA-363 (emphasis added).

presumption of prosecution estoppel asks “whether the reason for the narrowing amendment was peripheral, or not directly relevant, to the alleged equivalent.”⁴⁶ In this regard, the Federal Circuit has advised that “an amendment made to avoid prior art that contains the equivalent in question is not tangential; it is central to allowance of the claim.”⁴⁷ Plaintiffs argue that the references cited in the examiner’s rejection did not teach straight inserts, but this is both factually incorrect and ultimately unpersuasive. It is factually incorrect because the Robertson Patent clearly discloses the very equivalent at issue—a flat, compliant insert that obtains curvature from the substrate on which it is placed.⁴⁸ It is also unpersuasive because “there is no principle of patent law that the scope of a surrender of subject matter during prosecution is limited to what is absolutely necessary to avoid a prior art reference that was the basis for an examiner’s rejection.”⁴⁹ Indeed, where patentees have surrendered more than necessary to secure patentability, the Federal Circuit has consistently held them to the scope of what they ultimately claim, and “not allowed them to assert that claims should be interpreted as if they had surrendered only what they had to.”⁵⁰ The question, then, is whether a competitor of ordinary skill in the art reading these amendments alongside Dr.

⁴⁶ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 344 F.3d 1359, 1369 (Fed. Cir. 2003) (en banc).

⁴⁷ *Id.*

⁴⁸ Figures 2 and 3 of the Robertson Patent clearly show an embodiment of the insert that is flat in configuration. Figure 6 of Robertson shows the same insert embodiment curving horizontally when placed on the user’s head. Finally, although the preferred embodiment of the Robertson insert is vertically curved “to generally conform to the curvature of the head in the area used for heading a soccer ball,” the specification is clear that the insert can also “be flat on both of the main opposed surfaces.” Robertson Patent, 3: 25-29.

⁴⁹ *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1361 (Fed. Cir. 2005).

⁵⁰ *Id.* at 1362 (collecting cases).

Abraham's explanations would consider them to have surrendered claim to an insert without curvature.⁵¹

In this case, the answer to that question is yes. Dr. Abraham's amendments expressly spoke to the curvature of the insert where his original claim was not so particular. Furthermore, Dr. Abraham's explanations in the public record of prosecution confirm that each amendment—including "that the at least one insert be curved in configuration"—was made "to more particularly point out and distinctly claim" the invention. Simply put, the only objectively apparent reason for limiting the curvature of the insert was to distinguish Dr. Abraham's application from the prior art and thereby secure patentability.⁵² Having surrendered a claim to non-curved inserts during prosecution, plaintiffs cannot now complain of infringement by their equivalents.

2. *Claims 2-9*

Regarding Claim 3 of the '174 Patent, no reasonable jury could determine that the Brain-Pad insert is "semi-rigid." This court has construed "semi-rigid" to mean "neither stiff nor pliable."⁵³ While admitting that the Brain-Pad insert is "soft and easily bent," plaintiffs insist that it is semi-rigid "because it has measurable resistance to deformation." This argument ignores the plain meaning of "pliable," which the Oxford English Dictionary has defined to mean "easy to be bent or folded; flexible, supple,

⁵¹ See *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1239 (Fed. Cir. 2001) ("[T]he relevant inquiry is whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.") (quoting *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1457 (Fed. Cir. 1998)).

⁵² See *Festo*, 344 F.3d at 1369 ("[T]he inquiry into whether a patentee can rebut the *Festo* presumption under the 'tangential' criterion focuses on the patentee's objectively apparent reason for the narrowing amendment.").

⁵³ D.I. 153 at 7.

yielding.”⁵⁴ The question is not whether the insert exhibits “measurable resistance to deformation,” but whether that resistance is easily overcome, allowing the insert to be folded and shaped without damaging it. Here, the flaccid loop insert of the Brain-Pad device can be easily folded, bent, and shaped with little or (in this court’s experience) no resistance and without any structural damage thereto.⁵⁵ It is completely pliable.

Apart from the “semi-rigid” limitation of Claim 3, no reasonable jury could disagree that the Brain-Pad device exhibits the limitations in Claims 2 through 9 of the ‘174 Patent. The Brain-Pad insert clearly has the “consistent memory” of Claim 2 in that it “consistently returns to its manufactured shape after deformation.”⁵⁶ Defendant contends that the Brain-Pad insert has variable memory because it changes in size when stretched. In the context of protective sweatbands, however, the relevant “deformation” is the depression made by an incoming force, not the stretching that occurs when the sweatband is worn as intended. Even considering defendant’s argument on its own terms, the Brain-Pad insert will in fact consistently return to its manufactured shape when one ceases stretching it. As to Claims 4 through 9, common sense agrees with defendant’s expert that the relevant limitations are met.⁵⁷ Nonetheless, there can be no infringement of these dependent claims where

⁵⁴ OXFORD ENGLISH DICTIONARY (2d ed. 1989).

⁵⁵ The error in plaintiffs’ argument is further highlighted by their suggestion of synthetic oil as an example of a polymer that is not semi-rigid, which implies that all polymers that do not flow are semi-rigid. This defies common sense as well as the plain meaning of “pliable,” which the Oxford English Dictionary uses in reference to solid substances as well as liquid ones.

⁵⁶ D.I. 153 at 7.

⁵⁷ See Initial Expert Report of Michael L. Gililand, D.I. 171 at DA-217-18 (admitting that the Brain-Pad device exhibits the limitations of Claims 4-9).

independent Claim 1 is not itself infringed.⁵⁸ Because the Brain-Pad device does not infringe independent Claim 1 of the '174 Patent, summary judgment of non-infringement will be granted as to dependent Claims 2-9 as well.

C. Willful and Dependent Infringement

Because the court finds no direct infringement of the '174 Patent, summary judgment is also appropriate with regard to plaintiffs' claims of willful infringement, contributory infringement, and inducement of infringement. Regarding the "dependent" theories of infringement, the law is clear that "[l]iability for either active inducement of infringement or for contributory infringement is dependent upon the existence of direct infringement," which is not present here.⁵⁹ Similarly, while 35 U.S.C. § 284 authorizes this court to award enhanced damages to a patent owner for willful infringement of his invention, that section only applies "upon finding for the claimant." Inasmuch as there is no infringement of the '174 Patent, the issue of willful infringement of that patent "necessarily drops out of the case."⁶⁰

IV. CONCLUSION

For the reasons stated above, plaintiffs' motion for summary judgment of infringement is DENIED, and defendant's motion for summary judgment of non-

⁵⁸ See, e.g., 35 U.S.C. § 112; *Jeneric/Pentron, Inc. v. Dillon Co., Inc.*, 205 F.3d 1377, 1383 (Fed. Cir. 2000) ("[A] dependent claim, by nature, incorporates all the limitations of the claim to which it refers.").

⁵⁹ *Joy Techs. Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993) (collecting cases).

⁶⁰ *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 830 (Fed. Cir. 1992). See also *Beatrice Foods Co. v. New England Printing and Lithographing Co.*, 923 F.2d 1576, 1579 (Fed. Cir. 1991) (explaining that enhanced damages may be awarded "only as a penalty for an infringer's increased culpability," and not as compensation "to rectify what the district court views as an inadequacy in actual damages awarded.").

infringement is GRANTED.

