

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZERO GRAVITY INSIDE, INC.,
Petitioner,

v.

FOOTBALANCE SYSTEM OY,
Patent Owner.

IPR2015-01769
Patent 7,793,433 B2

Before MEREDITH C. PETRAVICK, JEREMY M. PLENZLER, and
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

PETRAVICK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
37 C.F.R. § 328(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Zero Gravity Inside, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–7 of U.S. Patent No. 7,793,433 B2 (Ex. 1001, “the ’433 patent”). Paper 1 (“Pet.”).

We instituted *inter partes* review of claims 1–7 on the following grounds:

Ground	Claims	Prior Art
§ 103	1–7	Dieckhaus ¹ and Foss ²
§ 103	1–7	Eschweiler ³ and Campbell ⁴

Paper 17 (“Dec. to Inst.”).

Footbalance System OY (“Patent Owner”) filed a Patent Owner’s Response to the Petition (Paper 26, “PO Resp.”) and Petitioner filed a Reply (Paper 35, “Pet. Reply”).

Patent Owner filed a Motion to Exclude Evidence. Paper 38. Petitioner filed an Opposition (Paper 40), and Patent Owner filed a Reply (Paper 41).

An oral hearing in this proceeding was held on October 24, 2016. A transcript of the hearing is included in the record. Paper 45 (“Tr.”).

¹ U.S. Patent No. 6,543,158 B2 (issued April 8, 2003) (Ex. 1004).

² U.S. Patent Application Publication No. 2004/0209059 A1 (published Oct. 21, 2004) (Ex. 1005).

³ U.S. Patent No. 6,560,902 B1 (issued May 13, 2003) (Ex. 1006).

⁴ U.S. Patent Application Publication No. 2004/0194352 A1 (published Oct. 7, 2004) (Ex. 1007).

In response to an Order entered by the Board on December 2, 2016 (Paper 44), Petitioner and Patent Owner submitted additional briefing addressing the construction of the MTP limitation.⁵ Papers 47 and 48.

For the reasons that follow, we determine that Petitioner fails to show by a preponderance of the evidence that claims 1–7 of the ’433 patent are unpatentable.

B. Related Proceedings

The parties indicate that the ’433 patent is at issue in *Footbalance System Inc. et al. v. Zero Gravity Inside, Inc. et al.*, Case No. 15-cv-01058, in the U.S. District Court for the Southern District of California. Pet. 1; Paper 5, 1. In addition, the ’433 patent is related to U.S. Patent No. 8,171,589 B2, which was the subject of a petition for *inter partes* review in proceeding IPR2015-01770. Institution was denied in proceeding IPR2015-01770.

C. Foot Anatomy

The claims at issue in this proceeding define claim limitations relative to “the metatarsophalangeal joint of the foot” (Ex. 1001, claim 1). Thus, some understanding of the location of the metatarsophalangeal (“MTP”) joint is helpful.

Both Petitioner’s declarant Dr. Chimba Mkandawire and Patent Owner’s declarant Dr. Kenneth G. Holt indicate that the MTP joint is located in the area where the metatarsal bones meet the phalangeal bones. Reproduced below is Figure 6 of the Declaration of Dr. Chimba

⁵ The “MTP limitation” is claim 1’s requirement that “at least one layer of thermoplastic material is configured to reach out from under a heel of a foot only to the metatarsophalangeal joint of the foot.” Ex. 1001, 9:33–35.

Mkandawire, with some of Dr. Mkandawire's annotations omitted. Ex. 1030 ¶ 32.

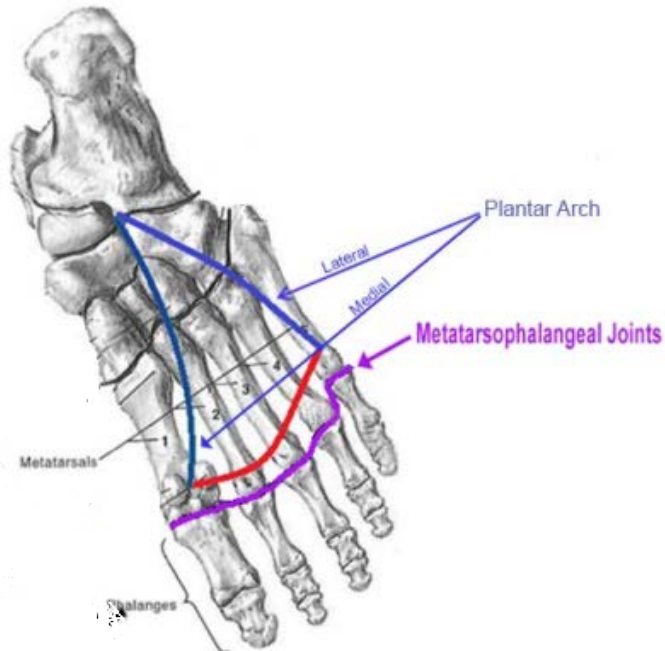
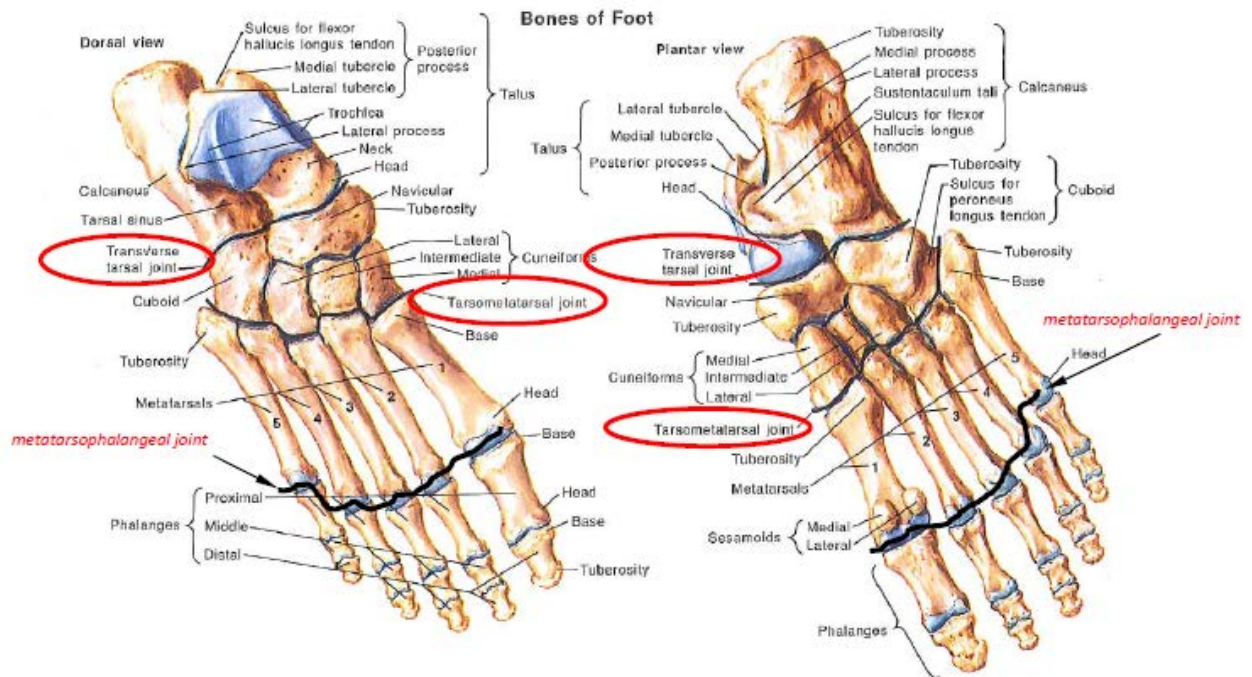


Figure 6. Ciba, Ex. 1031, at p. 17, Slide 3673 (adapted and annotated).

Figure 6 reproduces a figure from The CIBA Collection of Medical Illustrations (*see* Ex. 1031, 17) depicting the bones of the foot and with added annotations to show the locations of the MTP joint. Pet. 21. Dr. Mkandawire testifies that “[t]he areas joining the phalanges and the metatarsals are known as the [MTP] joints.” Ex. 1030 ¶ 28.

Reproduced below is a figure from the Declaration of Dr. Holt, Patent Owner's declarant. Ex. 2016 ¶ 40.



Dr. Holt’s figure also reproduces a figure from The CIBA Collection of Medical Illustrations (*see* Ex. 1031, 17), depicting the bones of the foot and with annotations to show the locations of the MTP joint. *See* Ex. 2016 ¶ 40.

According to Dr. Holt,

there are in fact five [MTP] joints . . . in the foot. A person of ordinary skill in the art at the time of the invention would have understood that using “metatarsophalangeal joint” in singular form without specifying a particular MTP joint meant that the singular term included all five MTP joints and that each MTP joint lies at a different longitudinal position on the foot relative to the other four MTP joint.

Ex. 2016 ¶ 39. “Each MTP joint is precisely located at the junction of each of the heads of the metatarsal bones and the corresponding proximal phalanx.” *Id.* ¶ 40.

The location and shape of the MTP joint of individual persons are different, and can be different for each foot of an individual. Both Dr. Mkandawire and Dr. Holt testify that the shape of feet are “unique.” *See* Ex.

1030 ¶ 38; Ex. 2016 ¶ 34; *see also* Ex. 1004 1:57–58 (“[P]eople do not generally bear identical feet shape.”), 7:53–54 (“[H]uman feet are practically never of equal size or shape.”). Dr. Holt states “[i]n fact in many cases, individual feet vary significantly in their proportions, e.g., in the ratio of forefoot and rearfoot length. . . . [T]here is no average foot. Feet are as unique as faces.” Ex. 2016 ¶ 34.

D. The '433 Patent

The '433 patent is titled “Individually Formed Footwear and Related Method” and issued on September 14, 2010 from an application filed on July 14, 2006. Ex. 1004, (22), (45), (54). The '433 patent discloses a blank or preformed insole that can be molded to a person’s foot. *See id.* at 1:63–2:9. The '433 patent discloses that a retailer will stock a variety of preformed insoles, which can be selected by a retail clerk for a client based upon use, foot size, etc. *Id.* at 6:49–7:15 and 7:47–59. “As human feet are practically never of equal size or shape, the preforms may [be] packed separately instead of traditional pair-packs.” *Id.* at 7:53–55. Alternatively, in rare situations where the needed preformed insole is not available in the retailer’s stock, custom preform insoles may be specially made for a client. *Id.* at 7:15–36. After selection, the preformed insoles are molded to the client’s foot. *Id.* at 7:60–8:47.

The preformed insole is molded to a person’s foot by heating the preformed insole while the preformed insole is in contact with the foot. *Id.* at 2:44–59, 7:60–8:40, Fig. 2. The preformed insole then is allowed to cool. *Id.* The cooled preformed insole retains the molded shape because it includes a layer of thermoplastic material. *Id.* at 5:60–4:14.

Figure 1 of the '433 patent is reproduced below.

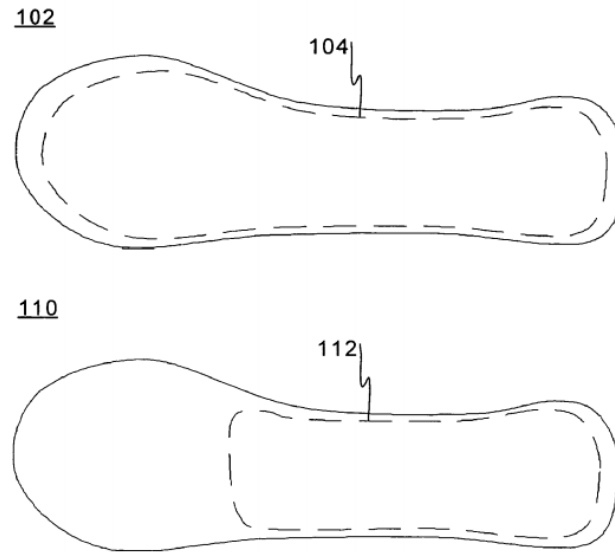


Figure 1

Figure 1 depicts two alternate embodiments of the preformed insole. *Id.* at 3:32–33. The preformed insole has at least one layer made of thermoplastic material and may additionally have an upper layer and a lower layer for comfort. *Id.* at 3:46–53. As can be seen in Figure 1, middle layer 104 “covers laterally the whole area” of preformed insole 102 (*id.* at 4:23–26) and middle layer 112 “covers laterally only a part” of preformed insole 110 (*id.* at 4:26–27).

With respect to preformed insole 110, the '443 patent states:

[I]t is necessary that the thermoplastic reach out lengthwise at least under the heel to under the plantar arch and in lateral direction advantageously almost to the whole width of the insole. As one feasible implementation, the thermoplastic layer is designed so as to reach out from under the heel to the metatarsophalangeal joint of the foot so that the transverse arch can be supported.

Id. at 4:27–34. The toe area lacks the thermoplastic material to help the foot move naturally during walking or running. *Id.* at 4:39–42.

Suitable thermoplastic materials for the middle layer have a glass transition (*i.e.*, the temperature at which the material becomes plastic) between 45° C and 95° C. *Id.* at 3:60–4:7. Examples of such thermoplastic materials are amorphous polyester terephthalate (“A-PET”), glycol-modified polyester terephthalate (“PETG”), acrylonitrile butadiene styrene (“ABS”), and polyvinyl chloride (“PVC”). *Id.* at 4:8–14.

E. Illustrative Claim

Claim 1, reproduced below, is illustrative of the challenged claims of the '433 patent.

1. An insole for footwear, comprising:
 - at least one layer made of thermoplastic material; and
 - a lower layer configured to be placed against the footwear,wherein said thermoplastic material is selected from the group consisting of: ABS, PVC, A-PET and PETG,
 - wherein said thermoplastic material of said at least one layer becomes plastic substantially under 95° C. and above 45° C., and
 - wherein the at least one layer of thermoplastic material is configured to reach out from under a heel of a foot only to the metatarsophalangeal joint of the foot, and
 - wherein the lower layer is configured to reach from under the heel to the metatarsophalangeal joint and extend further to a toe of the foot.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as they would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner proposes constructions for multiple claim elements. *See* Pet. 14–20. For the purposes of our Decision, however, we need only address one. *See, e.g., Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy.’”) (quotation omitted).

Claim 1 recites “wherein the at least one layer of thermoplastic material is configured to reach out from under a heel of a foot only to the metatarsophalangeal joint of the foot.” Ex. 1001, 9:33–35 (“the MTP limitation”). The MTP limitation defines the end of the thermoplastic layer relative to the anatomy of a foot — “from under a heel of a foot only to the metatarsophalangeal joint.”

In the Petition, Petitioner contends that the MTP limitation requires the thermoplastic layer to be of such a length that it does not extend to the toe area or extends to $\frac{3}{4}$ the length of the insole. *See* Pet. 15–17; *see also*

Ex. 1030 ¶¶ 24 and 17 (testimony of Dr. Mkandawire that the MTP joint is located approximately $\frac{3}{4}$ of the way down the foot).

In its Response, Patent Owner contends that the MTP limitation requires not approximates or averages of the anatomic location of the MTP joint but precise anatomic locations. PO Resp. 1. Patent Owner argues that a person of ordinary skill in the art would understand the MTP limitation as requiring a precise anatomic location and not an approximation or average, such as $\frac{3}{4}$ the length of the foot, because there is no approximation or average of the location of the MTP joint. *Id.* Likewise, in its additional briefing, Patent Owner contends that the claim requires “an insole layer formed (e.g., at the point of sale) to extend to, but no further than, the location of the MTP joint of a specific foot.” Paper 47, 2. The MTP joint is composed of five joints and each of the five joints are at a different lengths from the heel. *See* Ex. 2016 ¶¶ 39–40. “[O]nly to’ means that the thermoplastic extends to each joint, but no further (to avoid impeding natural foot movement).” Paper 47, 4. According to Patent Owner, its construction is consistent with the ’433 patent’s disclosure of an insole after it has been molded to a specific foot. *Id.* at 7. Patent Owner asserts “[t]he claims are not directly met by the starting product (i.e., the preform before it is molded to a specific foot) or an off-the-shelf ‘non-custom’ insole.” *Id.*; *see also id.* at 4 (“The claim thus directly covers the final product (i.e., the preform that has been configured to a specific foot) and not the starting product (i.e., the un-configured preform).”).

In its Reply, Petitioner seems to abandon its contention that the MTP joint is located at $\frac{3}{4}$ the length of the foot. *See* Pet. Reply 3–6 and 20–23. Similarly, in its additional briefing, Petitioner seems to abandon its

contention that the MTP joint is located at $\frac{3}{4}$ the length of the foot. *See* Paper 48,⁶ 2–4. Petitioner does not represent its construction in the Petition (i.e., a length that it does not extend to the toe area or extends to $\frac{3}{4}$ the length of the insole) as the ordinary and customary construction of the MTP limitation in its additional briefing. *See id.* Instead, Petitioner argues that “it is clear from the illustrations each expert used that there is no substantive disagreement regarding the collective location of the five MTP joints in any one particular human foot” and “in order to determine whether a particular insole embodies the MTP limitation, it must be determined whether the front edge of the thermoplastic layer of that particular insole reaches only to the MTP joint of a particular foot.” *Id.* at 3–4 and 7.

Given this, there is no dispute that the MTP limitation requires an insole layer formed to extend to, but no further than, the location of the MTP joint of a specific foot. The location of the MTP joint is the junction of each of the heads of the metatarsal bones and the corresponding proximal phalanx.

B. Obviousness

Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007). The ultimate determination of obviousness under § 103 is a question of law based on

⁶ Only the first page of Paper 48, which contains the caption, is numbered and it is numbered as “2.” In our Decision, we refer to the number of the page as if the first page is counted as one.

underlying factual findings. *In re Baxter Int'l, Inc.*, 678 F.3d 1357, 1362 (Fed. Cir. 2012) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1996)). These underlying factual considerations consist of: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.”⁷ *KSR*, 550 U.S. at 406 (quoting *Graham*, 338 U.S. at 17–18).

C. Dieckhaus and Foss

Petitioner contends that claims 1–7 would have been obvious to a person of ordinary skill in the art⁸ over Dieckhaus and Foss. Pet. 26–43.

1. Overview of Dieckhaus

Dieckhaus is a U.S. patent titled “Footwear Insole Insert” and issued on April 8, 2003. Ex. 1004, (54) and (43). Dieckhaus discloses insoles that are moldable to a foot when heat and pressure are applied. *Id.* at 4:23–49. Figures 1 and 2 of Dieckhaus are reproduced below.

⁷ The record contains no evidence of secondary considerations.

⁸ Petitioner contends that a person of ordinary skill in the art as of July 2006 would possess at least a Bachelor’s degree in biomechanics or material science or an equivalent degree and would have at least two years of practical experience in the field of designing shoes, orthotics, or shoe insoles. Pet. 14. Patent Owner’s declarant has a very similar view of the level of ordinary skill in the relevant art. Ex. 2016 ¶ 19.

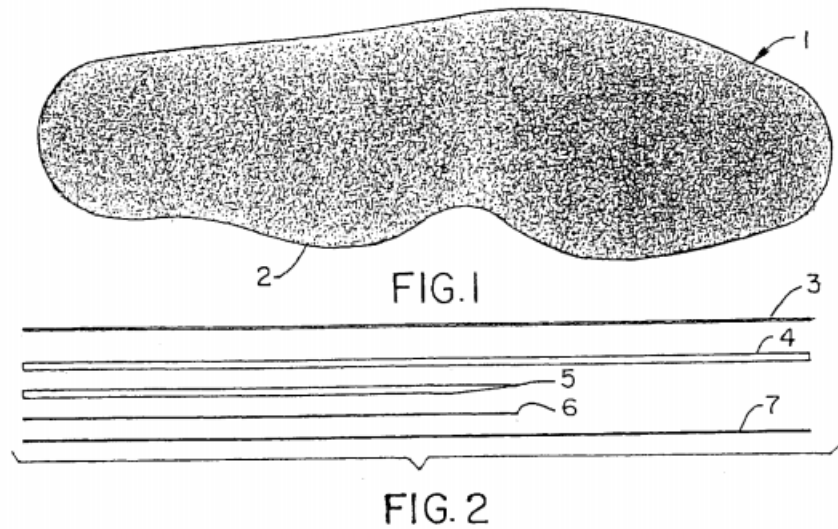


Figure 1 of Dieckhaus depicts an embodiment of an insole, and Figure 2 depicts the layers that make up the insole. *Id.* at 4:35–38. The insole includes a thermoplastic layer 6. *Id.* at 5:60–6:59. As can be seen from Figures 1 and 2 above, lower layer 7 extends the entire length of the insole from the heel to the toe, but lower layer 6 “extends from the back or heel portion of the insole, to approximately just short of the ball section of the foot” or “only extend[s] partially towards the front of the insert.” *Id.* at 7:14–27; *see also id.* at 8:51–53 (claim 4 requiring a layer of thermosetting polymeric material that “extends less than the length of the shoe insert”).

Dieckhaus states that “this product can be expanded to include a variety of different components, in its structure, such as moldable heel pads . . . or may include three-quarter length inserts” (*id.* at 8:8–12) and discloses an alternate half form of the insole that “extends just to that portion behind the ball of the sole of the foot” (*id.* at 7:28–50, Figs. 4–5).

2. Independent Claim 1

Petitioner contends that independent claim 1 would have been obvious to a person of ordinary skill in the art over Dieckhaus and Foss. Pet. 26–35.

In particular, in the Petition, Petitioner first contends that Dieckhaus discloses “at least one layer of thermoplastic material is configured to reach out from under a heel of a foot only to the metatarsophalangeal joint of the foot,” as required by claim 1 of the ’433 patent, because Dieckhaus discloses an insole having a $\frac{3}{4}$ -length moldable support layer (i.e., thermoplastic layer 6). *Id.* at 33. Alternatively, Petitioner contends that:

A [person of ordinary skill in the art (“POSA”)] would have found it obvious as of July 2006 to vary the length of the Dieckhaus supportive layer to provide support to the foot, account for variability in foot structure and function, and ultimately be comfortable to the end user. (*Id.*, at ¶ 61.) As Dr. Mkandawire explains, Dieckhaus provides no limiting disclosure on what length the support layer should be except that it is less than the length of the shoe insert and should provide heel and arch support. (*Id.*) Consequently, a POSA would understand that the length of the insole in Dieckhaus could be varied to include extending from the heel to just before the toe area. (*Id.*, at ¶¶ 61, 66-67.)

Pet. 34. Petitioner does not rely upon Foss to teach the MTP limitation.

Petitioner apparently recognized that the arguments in the Petition rely upon a construction of the MTP limitation which is not the broadest reasonable construction in light of the specification (*see supra* 8–12; Pet. Reply 2 (explaining that the “Reply steers the case back to” the fundamental question of whether it would be obvious to arrive at the actual limitations of the claims and away from a “confusing discussion” of terms such as “ $\frac{3}{4}$ length.”)). Petitioner contends, in its Reply, that Dieckhaus teaches the MTP limitation because “Dieckhaus teaches that the thermoplastic layer 6 ‘only extend[s] . . . to the approximate ball of the foot.’” Pet. Reply 3–7 (citing Ex. 1004, 7:20–26). According to Petitioner, the location of the balls of the feet and the location of each MTP joint is the same location and, thus,

Dieckhaus teaches a thermoplastic layer that “extend[s] to approximately just before the MTP joint of the foot.” Pet. Reply 5–7. Petitioner argues that this teaching is “*so close* to the requirements of the MTP limitation that the MTP limitation would still have been *obvious* to a POSA in light of either of these teachings.” Paper 48, 8–9 (emphases in original).

Petitioner’s contentions in the Petition and Petitioner’s Reply are not persuasive. Petitioner’s contentions in the Petition are not persuasive because they are not based upon the broadest reasonable construction of the MTP limitation. As discussed above, we construe the MTP limitation to require a layer formed to extend to, but no further than, the location of the MTP joint of a specific foot. The location of the MTP joint is the junction of each of the heads of the metatarsal bones and the corresponding proximal phalanx. Petitioner contends that Dieckhaus discloses insoles having a $\frac{3}{4}$ -length moldable support layer. Pet. 33. Petitioner, however, does not sufficiently show that an insole having a $\frac{3}{4}$ -length moldable support layer teaches a layer formed to extend to, but no further than, the location of the MTP joint of a specific foot. Petitioner does not sufficiently show that a $\frac{3}{4}$ -length layer would extend to the heads of the metatarsal bones and the corresponding proximal phalanx of a specific foot. According to Dr. Holt, “skilled artisans at the time of the ’433 Patent would not have thought of or described the MTP joints as being located three-quarters of the way down the foot.” Ex. 2016 ¶ 22. As discussed above, “the location of the MTP joint varies from foot to foot and person to person” (PO Resp. 22). *See supra* 3–6. Similarly, even assuming that “a POSA would understand that the length of the insole in Dieckhaus could be varied to include extending from the heel to just before the toe area” (Pet. 34), Petitioner does not

sufficiently show that an *insole* that extends from the heel to just before the toe area teaches a thermoplastic layer formed to extend to, but no further than, the location of the MTP joint of a specific foot. *See* PO Resp. 23–24. Neither Petitioner nor Petitioner’s declaration from Dr. Mkandawire sufficiently explain how modifying Dieckhaus’s thermoplastic layer 6 to extend from the heel to the just before the toe area would result in thermoplastic layer 6 extending to, but no further than, the joint at the heads of the metatarsal bones and the corresponding proximal phalanx of a specific foot. *See* Pet. 26–36; Ex. 1030 ¶¶ 61, 66–67.

Petitioner’s contentions in its Reply also are not persuasive. Dieckhaus discloses that thermoplastic layer 6 “extends from the back or heel portion of the insole, to approximately just short of the ball section of the foot” or “only extend[s] partially towards the front of the insert.” Ex. 1004, 7:14–17. *Approximately just short* of the ball section of the foot is not the location of the MTP joints (i.e., the location of the heads of the metatarsal bones and the corresponding proximal phalanx). *See* Ex. 1030 ¶ 65 (figure annotated by Dr. Mkandawire depicting the location of the ball section of the foot as starting a distance behind the MTP joints towards the heel). Further, Petitioner does not sufficiently show that it would have been obvious to one of ordinary skill in the art to modify Dieckhaus’s thermoplastic layer 6 to extend to, but no further than, the location of the MTP joint of a specific foot. Petitioner’s assertion that such a modification would have been obvious because Dieckhaus’s disclosure is “so close” is a mere conclusory statement. “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support

the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 892 F.3d 1364, 1380 (Fed. Cir. 2016) (citing *KSR*, 550 U.S. at 418).

“In an *inter partes* review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. § 316(e), and that burden never shifts to the patentee.” *In re Magnum Oil Tools Int’l, Ltd.*, 892 F.3d at 1375 (quoting *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015)). We determine that the Petition fails to show by a preponderance of the evidence that claim 1 is unpatentable over Dieckhaus and Foss.

3. Dependent Claims 2–7

Claims 2–7 depend from claim 1. For the same reasons as discussed with regards to the patentability of claim 1 over Dieckhaus and Foss, we determine that the Petitioner fails to show by a preponderance of the evidence that claims 2–7 are unpatentable over Dieckhaus and Foss.

D. Eschweiler and Campbell

Petitioner contends that claims 1–7 would have been obvious to a person of ordinary skill in the art over Eschweiler and Campbell. Pet. 44–60.

1. Overview of Eschweiler

Eschweiler is a U.S. patent titled “Orthopaedic Insole” and issued on May 13, 2003. Ex. 1006, [45] and [54]. Eschweiler discloses an insole having a top cover 9, a bottom cover, and a support core 5 between the covers. *Id.* at 2:49–52; Figs. 2–3. Figure 1 of Eschweiler is reproduced below.

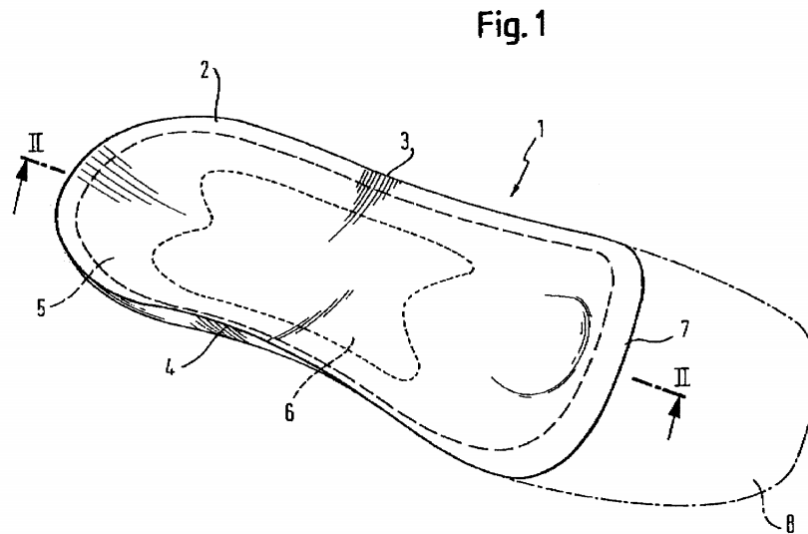


Figure 1 depicts an insole. *Id.* at 2:24. Eschweiler discloses that the insole:

[n]ormally ends at edge 7 in the metatarsal region. However, it is also possible to design the insole 1 such that it extends over the whole foot, as is indicated by the front flap 8, the insole consists only of the combination of the two abovementioned covers . . . without any supporting force being exerted in this area, and the support cores is therefore concentrated only on the rear area of the insole.

Id. at 2:40–48.

Eschweiler discloses that the top and bottom cover and the support core is made of thermoplastic material. *Id.* at 2:56.

2. Independent Claim 1

Petitioner contends that claim 1 is obvious over Eschweiler and Campbell. Pet. 44–53; Pet. Reply 20–23. In particular, in the Petition, Petitioner first contends that Eschweiler discloses “at least one layer of thermoplastic material is configured to reach out from under a heel of a foot only to the metatarsophalangeal joint of the foot,” as required by claim 1 of the ’433 patent, because Eschweiler discloses an insole having a $\frac{3}{4}$ -length

moldable support layer (i.e., support core 5). *Id.* at 50. Petitioner also contends that because Eschweiler discloses that its insole “normally ends at the edge 7 in the metatarsal region” as POSA would understand that support core 5 “by extending to the ‘metatarsal region’ would extend from the heel to just before the toe area (i.e., 3/4 length support layer).” *Id.* at 51.

Petitioner further contends that “a POSA, reading Eschweiler would have found it obvious, as of July 2006, to vary the length of the Eschweiler insole supportive layer to provide support to the foot, account for variability in foot structure and function, an ultimately be comfortable to the end user.” *Id.* at 52 (citing Ex. 1030 ¶ 71). Petitioner does not rely upon Campbell to teach the MTP limitation.

Petitioner’s contentions are not persuasive. As Patent Owner points out, Eschweiler does not disclose the MTP limitation because the support core 5 of Eschweiler does not disclose that support core 5 extends only to the MTP joints. PO Resp. 44–47. Eschweiler discloses that its insole “[n]ormally ends at edge 7 in the metatarsal region.” *Id.* at 2:40–41. Dr. Mkandawire testifies that the metatarsal region begins at the tarsometatarsal joints and ends at the MTP joints. Ex. 1030 ¶ 30. Even assuming that Eschweiler’s insole ends in the metatarsal region at the end closest to the MTP joints, Eschweiler’s support core 5 does not end at the MTP joints. As can be seen in Figure 1 reproduced above, the edge of support core 5 is offset some distance from edge 7 of the insole. Ex. 1006, fig. 1; *see also id.* at 1:28–33 (disclosing an area of fixed connection between top cover 9 and bottom cover 10, which extend beyond support core 5).

Petitioner contends that because the MTP joint includes not only portions of the metatarsals but also portions of the phalanges and space taken up by the cartilage between the metatarsals and the phalanges . . . It follows, therefore, that the distance, *s*, by which the thermoplastic layer 5 is offset from the edge 7 of Fig. 1 of Eschweiler could be taken up by the space taken up by the cartilage between the metatarsals and the phalanges as well as the portions of the phalanges that both make up part of the MTP joint.

Pet. Reply 22–23. Petitioner, however, does not sufficiently support its argument that offset could be taken up by the space between the metatarsals and the phalanges with evidence. *See id.* Petitioner proffers no support from Eschweiler or its declarant Dr. Mkandawire to establish that the offset could be taken up by the space between the metatarsals and the phalanges with evidence. *See id.* Petitioner’s argument is mere attorney argument, which is unsupported by factual evidence. Mere attorney arguments and conclusory statements that are unsupported by factual evidence have little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed.Cir.1997); *see also In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir.1984).

Further, Petitioner’s contention that a POSA would have found “it obvious, as of July 2006, to vary the length of the Eschweiler insole supportive layer to provide support to the foot, account for variability in foot structure and function, and ultimately be comfortable to the end user” is unpersuasive. *See* Pet. 52 (citing Ex. 1030 ¶ 71, testimony of Dr. Mkandawire repeating the Petition). Neither Petitioner nor Dr. Mkandawire sufficiently explain why a POSA would vary the length of Eschweiler such that support core 5 extends to, but no further than, the location of the MTP joint of a specific foot. *See* Pet. 52; Ex. 1030 ¶ 71.

Petitioner has the burden of persuasion to prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). We determine that Petitioner fails to show by a preponderance of the evidence that claim 1 is unpatentable over Eschweiler and Campbell.

3. Dependent Claims 2–7

Claims 2–7 depend from claim 1. For the same reasons as discussed with regards to the patentability of claim 1 over Eschweiler and Campbell, we determine that the Petition fails to show by a preponderance of the evidence that claims 2–7 are unpatentable over Eschweiler and Campbell.

III. MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude Evidence requesting that lines 6–10 of page 59 of Exhibit 1055, Deposition Transcript of Kenneth G Holt, and page 15, line 14–page 16, line 9 of Exhibit 1056, Deposition Transcript of Robert Kimmel, be excluded. Paper 2–3. We do not rely upon Exhibits 1055 and 1056 in our analysis above. Patent Owner’s Motion to Exclude Evidence, thus, is dismissed as moot.

IV. CONCLUSION

We determine that Petitioner fails to show by a preponderance of the evidence that claims 1–7 are unpatentable under 35 U.S.C. § 103 over Dieckhaus and Foss and fails to show by a preponderance of the evidence that claims 1–7 are unpatentable under 35 U.S.C. § 103 over Eschweiler and Campbell.

Patent Owner’s Motion to Exclude Evidence is dismissed.

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This is a final written decision of the Board under 35 U.S.C. § 328(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–7 of U.S. Patent No. 7,793,433 B2 are not shown to be unpatentable; and

FURTHER ORDERED that Patent Owner’s Motion to Exclude Evidence is dismissed.

PETITIONER:

Jason Croft
John Gadd
Parrish Freeman
MASCHOFF BRENNAN PLLC
jcroft@mabr.com
jgadd@mabr.com
pfreeman@mabr.com

PATENT OWNER:

Howard Wisnia
Brad Scheller
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.
ptohwisnia@mintz.com
ptoscheller@mintz.com