

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNDER ARMOUR, INC.,
Petitioner,

v.

ATHALONZ, LLC,
Patent Owner.

Case IPR2024-00636
Patent No. 10,674,786

PATENT OWNER'S RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Docket Control Order (Dkt. 35) in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2002	United States District Court Judicial Case Profiles, as of December 2023
2003	Under Armour's Invalidity Contentions in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2004	Exhibit A ('291 Patent Invalidity Chart Based on Kim) to Under Armour's Invalidity Contentions in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2005	Exhibit B ('291 Patent Invalidity Chart Based on Rubin) to Under Armour's Invalidity Contentions in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2006	Exhibit C ('291 Patent Invalidity Chart Based on Dufour) to Under Armour's Invalidity Contentions in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2007	Exhibit R ('291 Patent Obviousness Chart) to Under Armour's Invalidity Contentions in <i>Athalonz LLC v. Under Armour, Inc.</i> , No. 2:23-cv-00193-JRG (E.D. Tex.)
2008	Declaration of Mr. Timothy Markison in Support of Patent Owner's Response Regarding U.S. Patent No. 10,674,786
2009	CV of Mr. Timothy Markison
2010	Transcript of the 12/19/24 Deposition of Mr. Grant Delgatty in IPR2024-00636, IPR2024-00637, IPR2024-00638, IPR2024-00639, and IPR2024-00640

Exhibit	Description
2011	Excerpts from Holt, Serway & Faughin, Physics (1st ed. 2002)
2012	Presentation Titled “Athletic Positioning Shoe: Presentation to Under Armour, August 22, 2013”
2013	Article Titled “Athalonz Golf Shoes: The Golf Shoe for Distance?” downloaded from https://thelefttrough.com/athalonz-golf-shoes-review/ on December 30, 2024
2014	Claim Charts for U.S. Patent No. 10,674,786; 11,013,291; and 11,064,760 for Athalonz Products

Pursuant to 37 CFR § 42.120, Athalonz, LLC (“Athalonz” or “Patent Owner”) submits this Patent Owner Response to the Petition of Under Armour, Inc. (“UA” or “Petitioner”) seeking *inter partes* review (“IPR”) of U.S. Patent No. 10,674,786 (“the ’786 patent”), and to the Board’s September 12, 2024, Institution Decision (Paper 8).

I. INTRODUCTION

Petitioner’s hodgepodge of prior art references fails to disclose the invention claimed in the ’786 patent. Petitioner argues only that the claims are obvious, not anticipated, based on several single-reference obviousness arguments.

However, each of Petitioner’s reference fails to teach or suggest one or more limitations of the two independent claims. For each reference, Petitioner seeks to supply missing limitations or show they are obvious by citing to expert testimony that either merely quotes the applied reference with no explanation at all as to how it discloses or suggests the relevant limitation, or states without support that a POSITA would just know that the reference disclosed the relevant limitation. This is nothing more than an invitation for the Board to speculate as to the references’ teachings. Petitioner’s cursory citations and unsupported assertions of what a POSITA would know are insufficient to carry Petitioner’s burden to prove invalidity. The fact is that the ’786 Patent is novel and nonobvious—no piece of prior art

discloses the invention, or teaches or suggests it, and hand waiving by Petitioner and its expert in an attempt to show the claims are obvious necessarily fails.

II. BACKGROUND

A. Overview of the '786 Patent

The '786 patent is directed toward novel athletic shoes. *See* EX1001. The patent recognizes that the prior art offered “a wide variety of shoes” on the market, each with different designs and styles depending on their use. *Id.*, 1:35-37. For example, athletic shoes generally had a “particular sole pattern, a sole design, an insole design, and upper shoe portion design.” *Id.*, 1:39-44. However, prior art athletic shoes were limited in their design for athletic performance. For example, the patent recognizes that prior art baseball cleats were typically designed only to “facilitate[] better traction in grass and/or dirt while playing baseball.” *Id.*, 1:53-54. As such, these prior art shoes consisted of either a “relatively flat platform for the foot within the baseball spikes,” or sometimes offered a “heel portion of the shoe” “higher than the toe portion of the shoe.” *Id.*, 1:55-59. In sum, the prior art only used two dimensions to try and place the athlete in an athletic position, which was of limited value to athletes. EX2008 ¶56.

The '786 patent improved on the prior art by inventing shoes that place athletes in an “athletic position” through a novel “athletic positioning shape.” *Id.*, 8:65-9:1. As the patent explains, an “athletic position” involves having the athletes’

“knees slightly bent, weight more on the inside of the legs than the outside of the legs, knees position aligned with ankles and hips, and/or other athletic positioning characteristics.” *Id.*, 9:9-14. The patent further explains that this athletic positioning can be used in “any type of shoe” “to promote a better athletic position for an athlete.” *Id.*, 9:30-40; EX2008 ¶57. A POSITA would understand that the ’786 patent addresses the problem of athletic positioning through a specific shoe sole uses a particular sole design to manipulate and optimize the athlete’s foot position. EX2008 ¶58.

The particular implementation of shoes that provide the athletic position may vary, however, these shoes generally include an upper section, an insole section, and a sole section with an athletic positioning shape, including a heel section, a mid-foot section, and a toe section. *Id.*, 8:67-9:1; EX2008 ¶59.

The athletic positioning described by the ’786 patent is achieved by the combination of the heel platform section and an angled support platform. *Id.*, 10:52-59. Both the heel platform section and the angled support platform have characteristics that contribute to the athletic positioning. *See* EX2008 ¶¶59-70. Figure 8 is an isometric diagram of one embodiment of the athletic positioning shoe described in the ’786 patent, which depicts both the heel platform (38) and angled support platform (36):

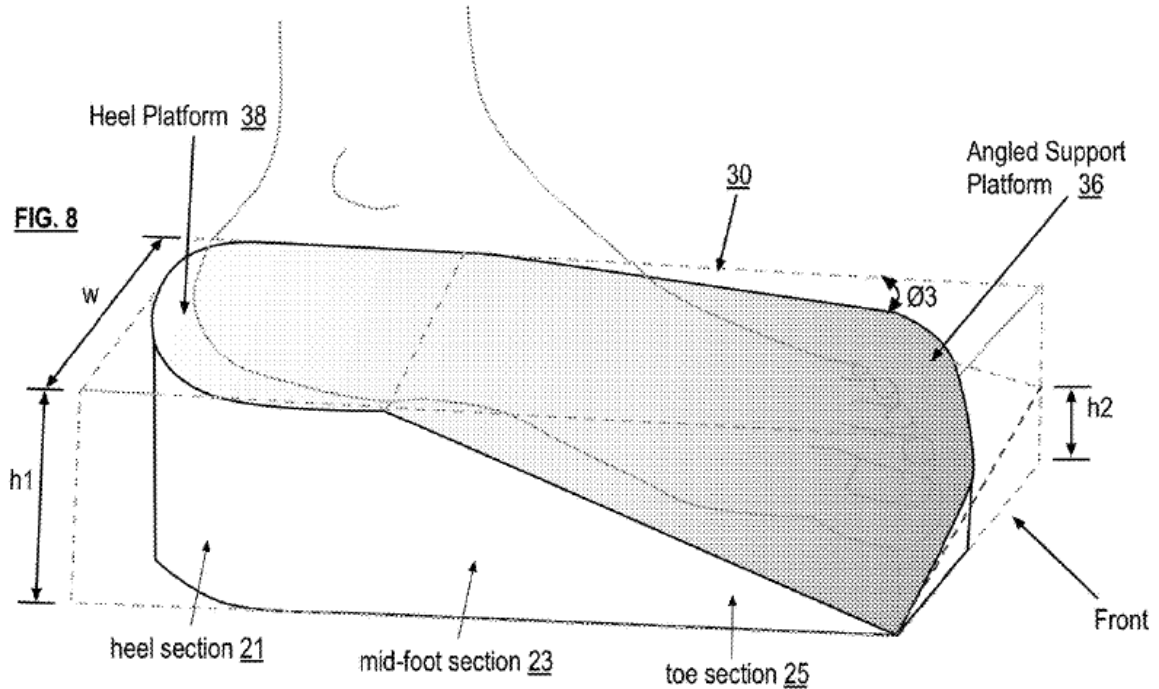


Figure 20 is one of many other illustrations of athletic positioning in a sole of a shoe:

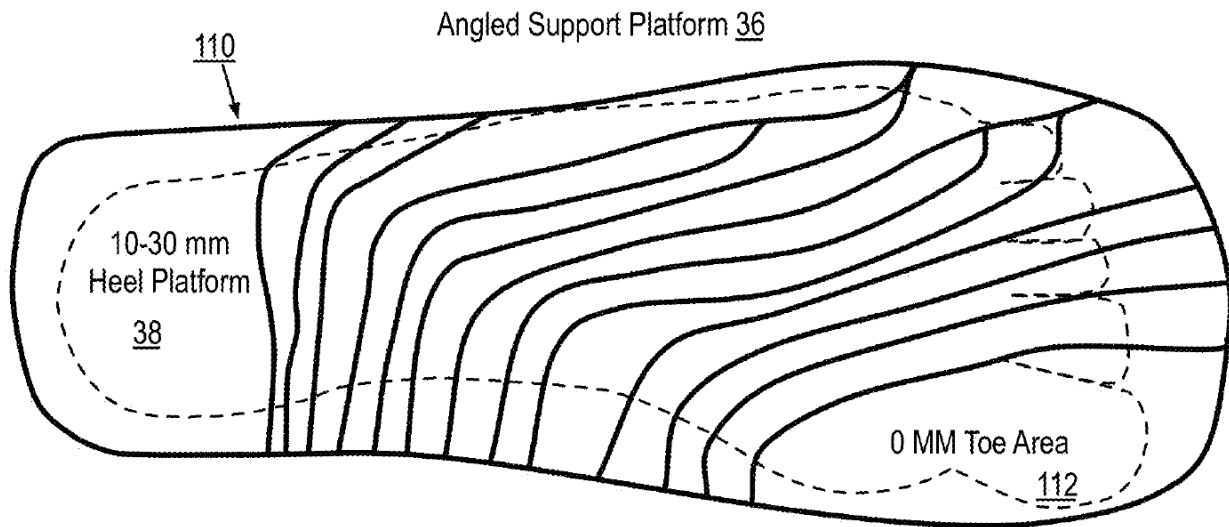


FIG. 20

Each of these embodiments shows a shoe with a heel platform at a height greater than the small toe area and the small toe area at a height greater than the big

toe area. EX2008 ¶¶59-61. As the Institution Decision recognizes, the '786 Patent is directed to a shoe or outsole “that positions a big toe lower than an outer toe, both of which are lower than the heel.” Paper 8 at 4. This Institution Decision also acknowledges that the '786 Patent discloses the existence of three heights:

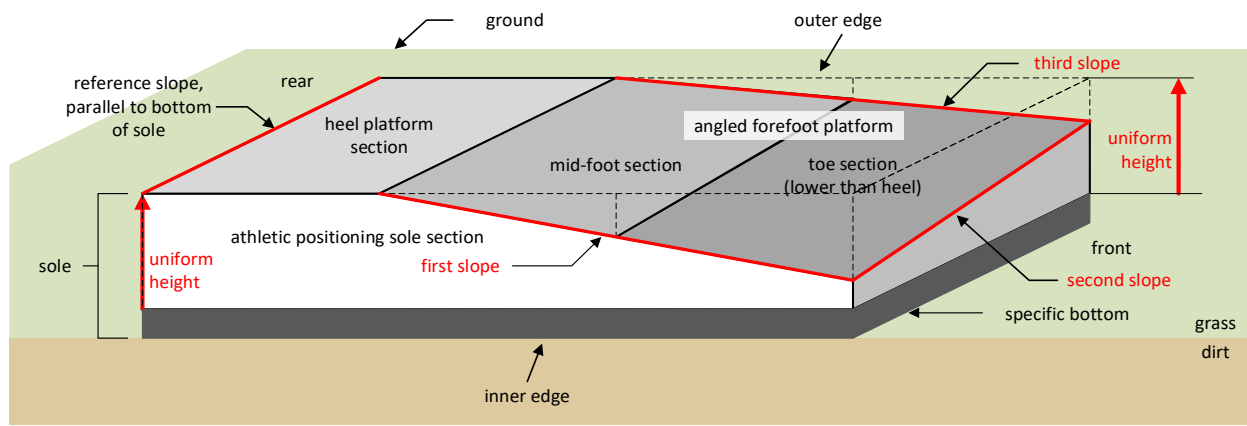
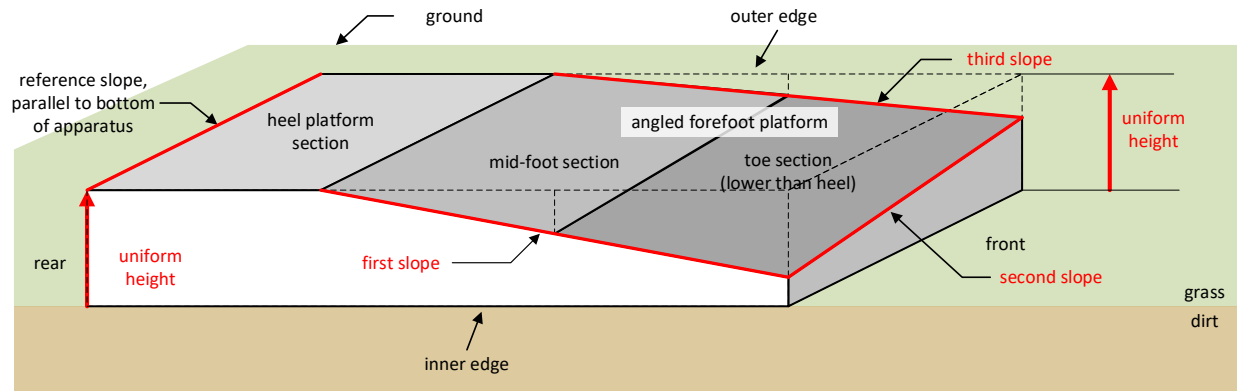
- h1: the height of the heel;
- h2: the height of the little toe; and
- h3: the height of the big toe.

Id. The Board further recognizes that “ $h3 < h2 < h1$,” i.e., that the height of the heel is greater than the height of the little toe, and the height of the little toe is greater than the height of the big toe. *Id.*

These heights form the basis for various “slopes” associated with the athletic positioning sole. In particular, the combination of the heel platform section and the angled support platform creates four separate slopes, which are claimed in both of the patent’s independent claims. In particular, a “reference slope” runs from the outer edge to the inner edge of the heel platform section, a “first slope” corresponds to the first angle of the inside edge from the heel section to the toe section, a “second slope” corresponds to the second angle of the outside edge of the toe section to the inside edge of the toe section, and a “third slope” corresponds to the third angle of the outside edge from the heel section to the toe section. *Id.*, 10:4-16; EX2008 ¶¶61-63.

The reference slope in claims 1 and 5 of the '786 Patent is “substantially parallel to a bottom surface of the” apparatus (claim 1) or sole (claim 5). *Id.*, 42:64-65, 43:44-45. The reference slope is not measured relative to the ground. It is always parallel to the bottom surface of the apparatus. EX2008 ¶¶62-63. The first, second, and third slopes are determined and compared to the reference slope, i.e., a line parallel to the bottom surface of the shoe, and not to the ground. *Id.*, 42:2-11, 43:2-14; EX2008 ¶¶62-63. This measurement is consistent with one of the benefits of the '786 patent, which is to avoid pronation or supination of the foot of the wearer. EX2008 ¶70.

Mr. Markison's block diagrams, included below, show a simplified version of the reference, first, second, and third slopes described in the '786 patent. EX2008 ¶72. These illustrations are consistent with the descriptions of the '786 patent that use block diagrams to show the geometric shape of the shoes being claimed. *Id.* ¶72 n.1. The illustrations show the heel platform and the angled support platform that form the athletic positioning for the shoes of claim 1 (first drawing, without a sport-specific bottom) and claim 5 (second drawing, showing a sport-specific bottom):



EX2008 ¶72.

B. The Claims of the '786 Patent

Exemplary independent claim 1 of the '786 patent is shown below:

An apparatus comprises:

a heel platform section that has a uniform height from an outer edge to an inner edge of the apparatus at the rear edge of the apparatus,

wherein the uniform height establishes a reference slope from the outer edge to the inner edge, the reference slope substantially parallel to a bottom surface of the apparatus;

a mid-foot section juxtaposed to the heel platform section; and

a toe section juxtaposed to the mid-foot section,

wherein the mid-foot section and the toe section form an angled support platform that has a first slope along the inner edge of the apparatus from a front edge of the apparatus to the heel platform section, a second slope along the front edge of the apparatus from the inner edge to the outer edge of the apparatus, and a third slope along the outer edge of the apparatus from the front edge of the apparatus to the heel platform section, the first slope, second slope, and the third slope each greater than the reference slope,

wherein the toe section is lower than the heel platform section as a result of the first, second, and third slopes.

EX1001, claim 1. Petitioner also challenges dependent claims 2-4, which depend from claim 1 and add additional limitations.

Independent claim 5 recites similar limitation to claim 1, but adds additional limitations regarding “an athletic positioning sole section” and a “specific bottom.” *See* EX2008 ¶ 72. Dependent claims 6-8 are also challenged, which add additional limitations.

C. Overview of Petitioner’s Prior Art

Petitioner relies on three prior art references for its obviousness arguments, each of which relates to a shoe or shoes that purport to address an improved stance to assist the golfer’s swing. None of those references disclose or render obvious the

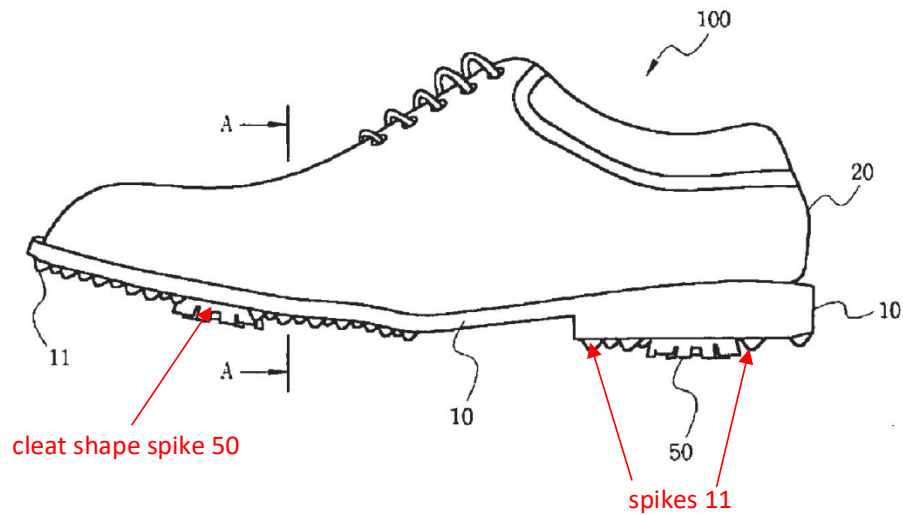
claims of the '786 patent. Instead, each of these prior art references incorporate a variation of a “wedge” sole that pushes the golfer’s entire foot inward under certain circumstances to improve weight distribution. EX2008 ¶¶92-93; 169-172. This concept is different than the invention claimed and does not render any of the challenged claims obvious, as set forth in detail below. *Id.*

1. Kim (EX1005)

Kim is directed to a pair of golf shoes. EX1005. Kim asserts that its shoes are designed to “assist a golfer in concentrating his/her proper weight balance on the inner edge of soles of feet during the address and swing motions” and to “allow a golfer to stably maintain the lower part of his/her body on the surface of a green during the address and swing motions.” *Id.*, [0012]-[0013]; EX2008 ¶ 94.

The shoes in Kim include spikes and cleats that are present in both the forefoot and heel section of the shoe, each of which are coupled to the outsole. EX2008 ¶ 95. Kim explains that “[a] plurality of spikes 11 [that] are protruded from the lower surface 12 of the outsole 10,” as well as “a plurality of cleat-shaped spikes 50 [that] are also protruded from the lower surface 12 of the outsole.” EX1005, [0030]. This is shown in Figure 1 (annotated below):

FIG. 1

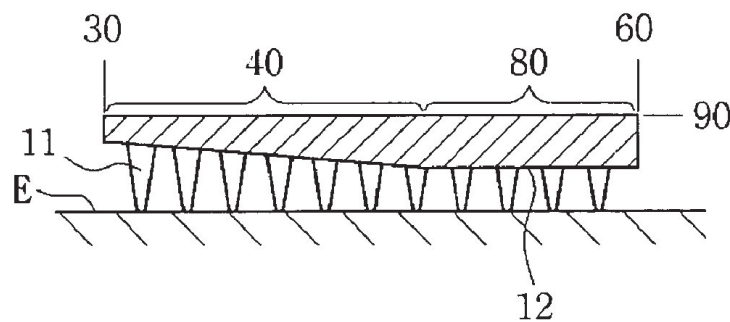


EX2008 ¶95.

Kim explains that the spikes 11 and 50 are longer on the inner edge than the outer edge running the entire length of the shoe. EX2008 ¶¶98-100. In particular, the shoes in Kim have an “outsole provided with a plurality of spikes protruded from a lower surface of the outsole,” arranged so that “the lower surface of the outsole is inclined from an outer edge of the outsole to an inner edge of the outsole[.]” *Id.*, Abstract. Kim’s outsole is also designed “so that the spikes at the inner edge of the outsole have a height larger than that of the spikes at the outer edge of the outsole[.]” *Id.* As a result, the shoes disclosed in Kim are designed so that the “upper surface of the outsole is substantially parallel with a ground,” *id.*, thereby providing a flat surface for an athlete’s foot. *See* EX2008 ¶¶100-104.

According to Kim, “the variation in the height of the spikes 11 and 50 protruded from the lower surface 12 of the outsole 10 is inversely proportional to the variation in the thickness of the outsole 10.” *Id.*, [0033]. Thus, in Kim, “the height of the spikes 11 and 50 at the outer edge 60 of the outsole 10 with the larger thickness is smaller than the height of the spikes 11 and 50 at the inner edge 30 of the outsole 10 with the smaller thickness.” *Id.* This is shown, for instance, in Figure 3b of Kim:

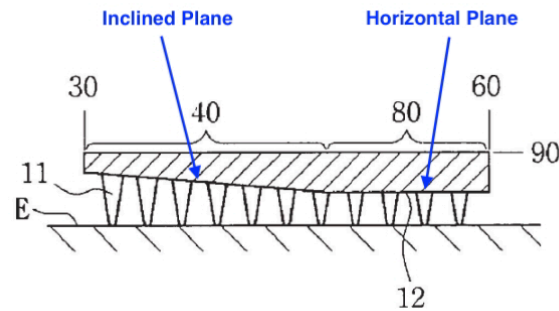
FIG. 3b



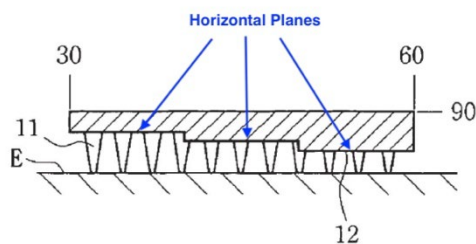
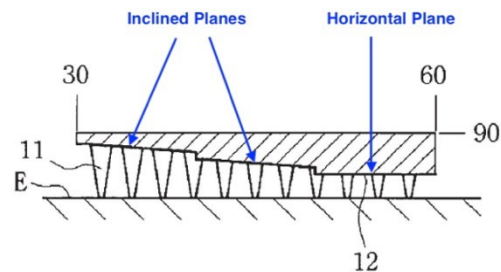
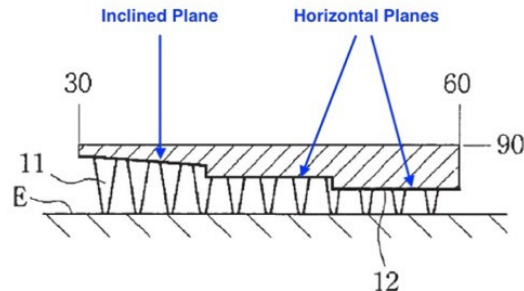
See also EX2008 ¶99.

Kim discloses several shapes of the bottom surface of the outsole that maintain the inverse proportionality of the height of the spikes to the height of the outsole. For instance, Figure 3b illustrates a bottom surface of an outsole that has a “horizontal plane 80” across part of the bottom of the outsole and an “inclined plane 40” that extends across the rest of the bottom of the insole. The total height of the spikes and the outsole, whether that outsole has the horizontal plane or the inclined

plane, is the same across the bottom of the shoe, such that the wearer's feet remain parallel to the bottom of the shoe and the ground, as is shown below:

FIG. 3b

Similarly, Figures 4a, 4b, and 4c illustrate combinations both inclined and horizontal planes on the bottom of the shoe, and the combined height of the spikes and outsole keeps the wearer's feet parallel to the ground (i.e., heel to toe and inside to outside of foot is parallel to the ground), as can be seen below:

FIG. 4a**FIG. 4b****FIG. 4c**

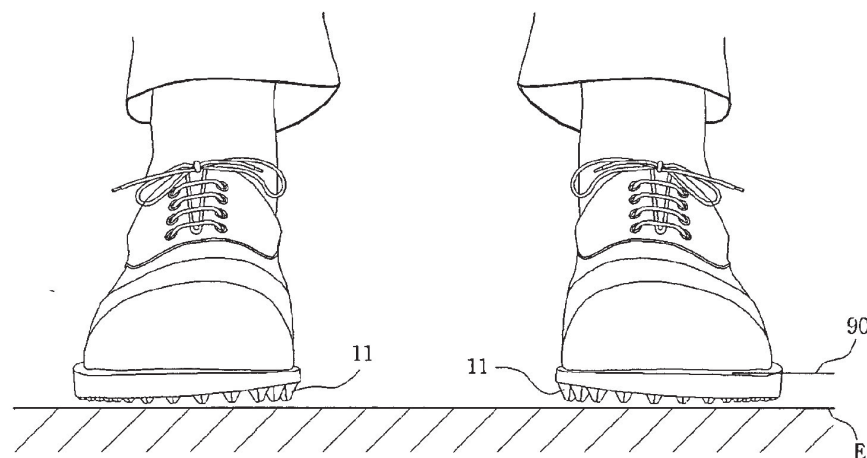
Kim explains that the design of the shoe, with the length of the spikes being inversely proportional to the height of the outsole, has the result that “the upper surface of the outsole is substantially parallel to the ground.” *Id.*, Abstract; *see also* [0014]; claim 1; EX2008 ¶¶103-104.

Kim includes two figures that purport to illustrate what the feet of the wearer of the shoes disclosed therein would look like on different surfaces.

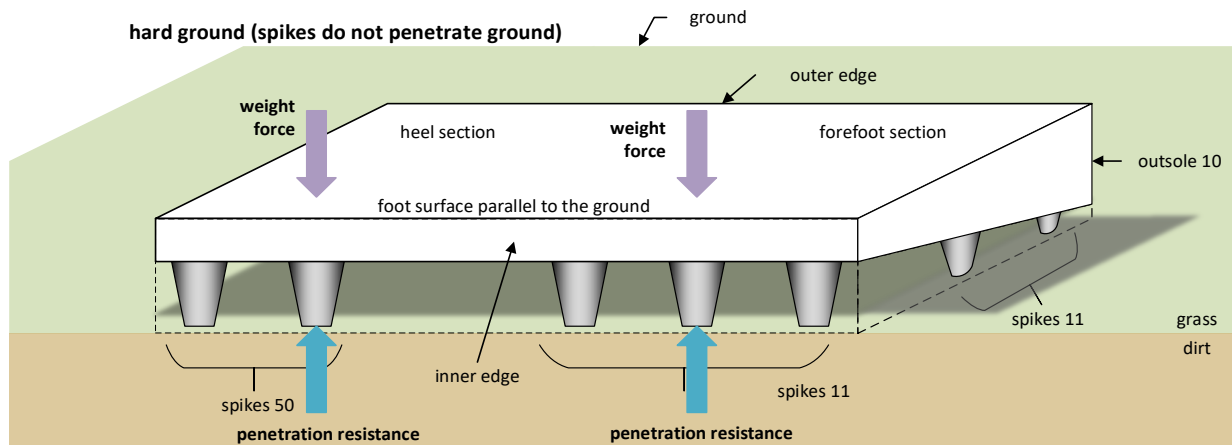
a. Kim’s “Hard Surface” Arrangement

Figure 5a, included below, depicts a “hard surface” arrangement, showing the wearer wearing the shoes on hard surface, like a paved road. *Id.*, [0038]. The bottoms of the spikes, and the upper surface of the outsole where the wearer’s foot rests, are substantially parallel to the ground. *Id.*, [0038]; *cf.* [0014]. In this configuration, the wearer’s feet are substantially parallel to the ground. *Id.*, Abstract; *see also* EX2008 ¶¶99-101.

FIG. 5a



A block diagram illustrating Kim's shoes on hard ground is shown below.

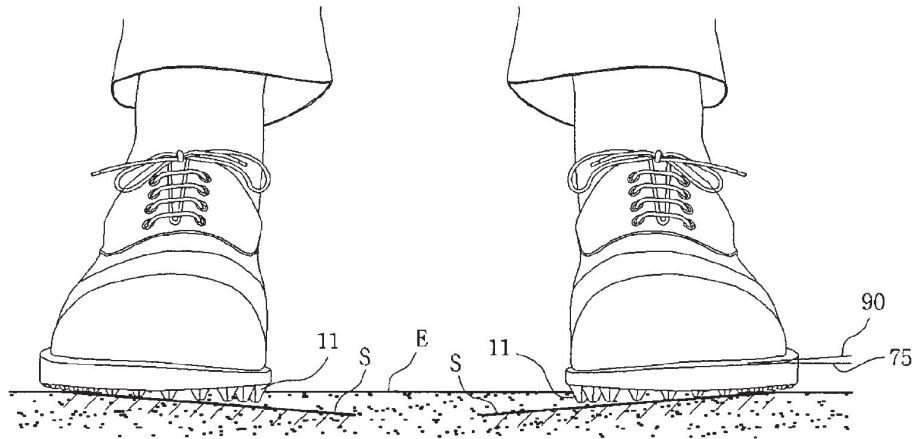


EX2008 ¶¶110-111. As shown in this illustration, the entire upper surface of the outsole is parallel to the bottom of the spikes, and therefore parallel to the ground on a hard surface. *Id.*

b. Kim's "Soft Ground" Arrangement

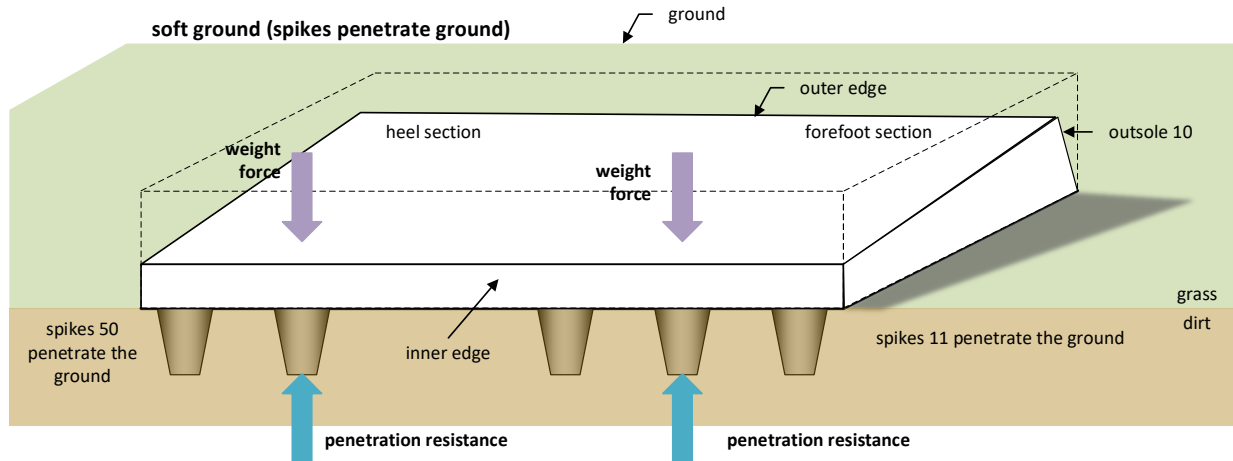
In contrast, Figure 5b, included below, depicts a "soft ground" arrangement, showing a wearer wearing the shoes on soft ground, such as when "standing on a green." *Id.*, [0024]; *compare* [0023] (showing contrast with Fig. 5a illustrating the wearer's feet on "hard ground"). As shown in Figure 5b, included below, the spikes on the inside edge of both shoes penetrate the ground, with the result that the entire foot of the wearer, including the heel, is rotated inwardly when the wearer is on soft ground. EX2008 ¶¶112-115.

FIG. 5b



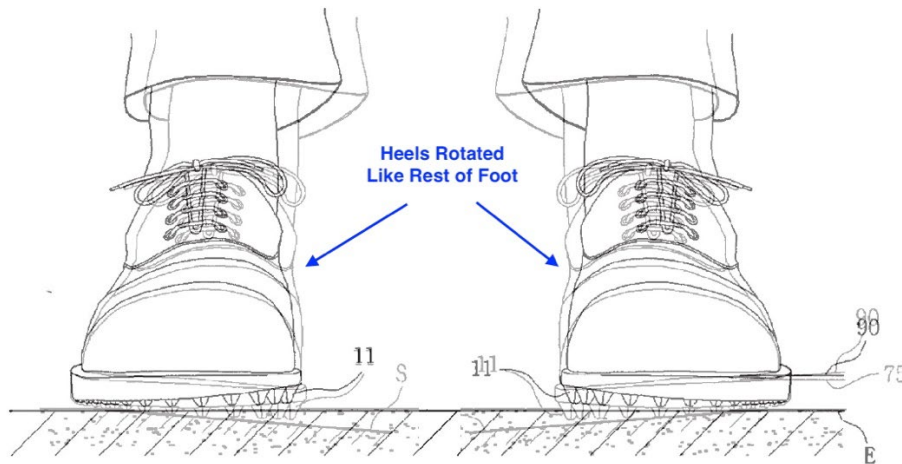
As explained by Kim, “the reference numeral 90 denotes a line representing the level of the golfer’s feet being parallel with the ground E, and the reference numeral 75 denotes a line being parallel with a line (S) representing the level of the bottoms of the spikes 11.” *Id.*, [0039]. Therefore, the golfer’s entire foot (including the heel) is either parallel with the ground when on hard surfaces (Fig. 5a, where 90 is parallel to ground E) or the entire foot (including the heel) is angled inward when on soft surfaces (Fig. 5b, along the reference line S, which slopes upwardly from the inside edge the outside edge of the shoe). EX2008 ¶112.

A block diagram illustrating Kim’s shoes on soft ground is shown below:



EX2008 ¶112. As shown in this illustration, when the spikes penetrate the ground, the entire foot of the wearer tilts inward. This can also be seen in a superimposition of Figures 5a and 5b:

FIG. 5a
FIG. 5b



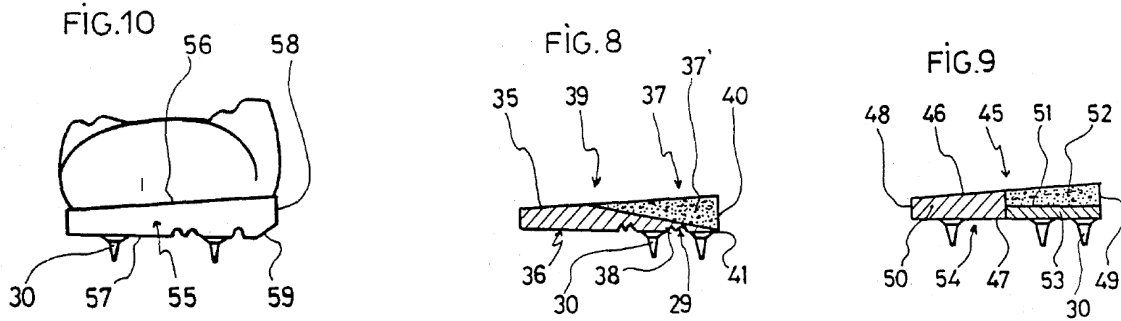
EX2008 ¶113. As Mr. Markison explains, if the heel did not incline inward like the rest of the foot, the ankles in these figures would be in the same position and only the forefoot would rotate, but that is not what the illustrations show. *Id.* ¶¶114-115.

2. Dufour (EX1006)

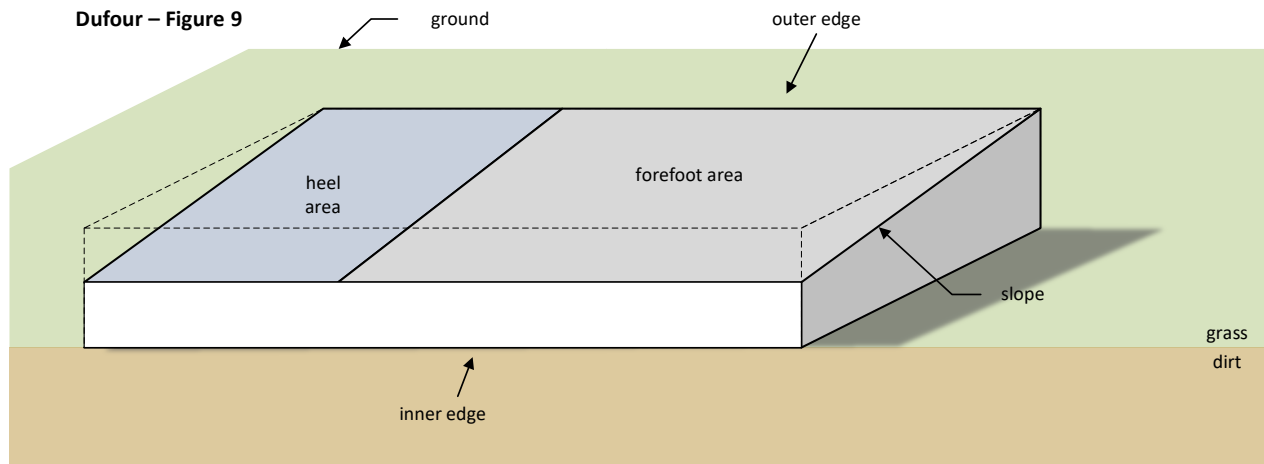
Dufour is directed to a golf shoe. EX1006. In particular, Dufour describes a number of different embodiments of a golf shoe for the front foot in a golfer's swing (the left foot for a right-handed golfer or the right foot for a left-handed golfer). EX2008 ¶122. Generally, Dufour's golf shoe includes an active zone of a shock absorbing material on the outside edge of a golfer's front shoe to promote comfort when the foot rolls to the outer edge of the sole during a golf swing. EX1006, 1:50-55. EX2008 ¶¶123-125.

Dufour has two embodiments that are relevant to this proceeding, the first with minor variations in two implementations shown in Figures 8-10, and the second shown in Figures 11 and 12. EX1006, 3:5-29; *see also* EX2008 ¶126; EX2010, 102:8-103:3 (agreeing Figures 11 and 12 are the same embodiment).

The first embodiment of Dufour corresponds to Figures 8-10, where Figures 8 and 9 are cross sections of the golf shoe of Figure 1 and Figure 10 is a front view of a shoe at cross-section VI – VI. The sole of Figure 10 has the thickness of the sole increasing from inner edge to the outer edge. This is also shown in Figures 8 and 9. EX2008 ¶¶127-128. Figures 8 and 9 also illustrate that the upward slope from the inner edge to the outer edge extends the length of the sole (i.e., heel to toe).

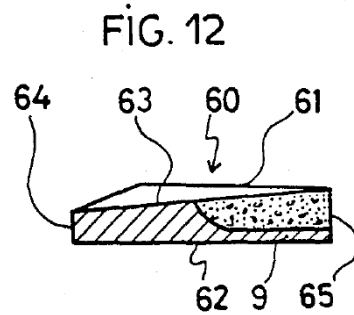
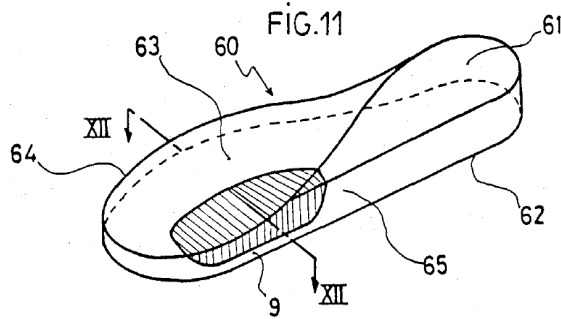


A block diagram illustrating the arrangement of Embodiment #1 is illustrated below:

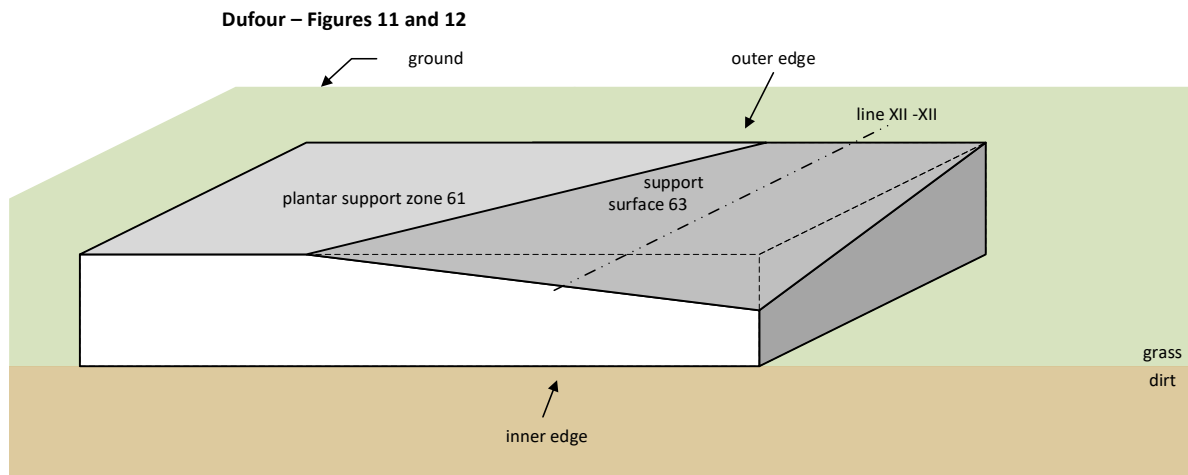


EX2008 ¶128.

The second relevant embodiment of Dufour is illustrated in Figures 11 and 12. In this embodiment, the outsole has two regions: the plantar support zone 61 and the support surface 63. The plantar support zone 61 is substantially parallel to the ground, whereas the entire support surface is angled. *Id.*, 5:7-14; *see also* EX2008 ¶¶129-130. In this embodiment, the height of the outer edge of the shoe remains the same as the height of the heel, while the inner edge angles downward. EX2008 ¶¶130-137.



A block diagram illustrating the arrangement of Embodiment #2 is shown below:



EX2008 ¶134.

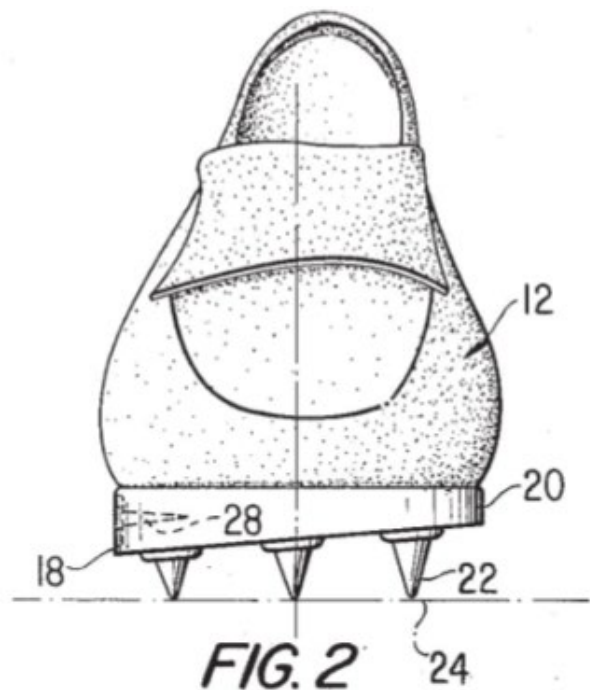
3. Rubin (EX1007)

Rubin is directed to a single golf shoe designed to be worn on the rearwardmost foot of a golfer in a stance addressing the golf ball. EX1007; EX2008 ¶138. The shoe disclosed in Rubin is similar to Kim in that it uses a wedge-shaped sole with differing cleat lengths to position the foot of the golfer. EX2008 ¶138.

Rubin discloses a golf shoe for the “rearmost foot positioned when the golfer takes his stance over the ball.” *Id.*, 3:2-5. Rubin’s shoe includes a “wedge-shaped sole 14” that has an “outer side 18” of the sole that “extends downwardly from the

shoe upper 12 to a lower elevation than the inner side 20 of [the] sole.” *Id.*, 3:9-11, 3:59-61. The shoe 10 includes cleats 22, which are shorter near the outer side 18 than at the inner side 20. The difference in cleat length is the same as the difference in the thickness of Rubin’s sole moving from the outer side to the inner side of the shoe. *Id.*, 3:29-33; EX2008 ¶¶141-142.

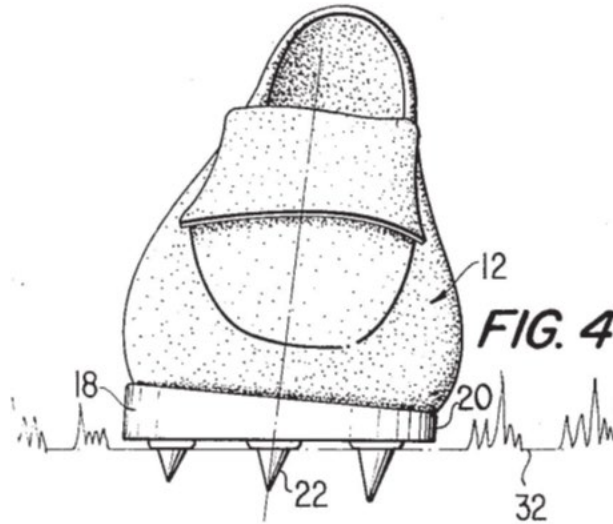
Rubin explains throughout its disclosure that the inverse relationship between the height of the cleats and the thickness of the sole enables the wearer to keep the foot “substantially level” to the ground when walking, as shown in Figure 2. *Id.*, 4:4-8; EX2008 ¶142.



For instance, Rubin explains the inverse relationship results in the sole being parallel to the ground on hard surfaces, such as concrete decks: “Cleats 22 adjacent the outer

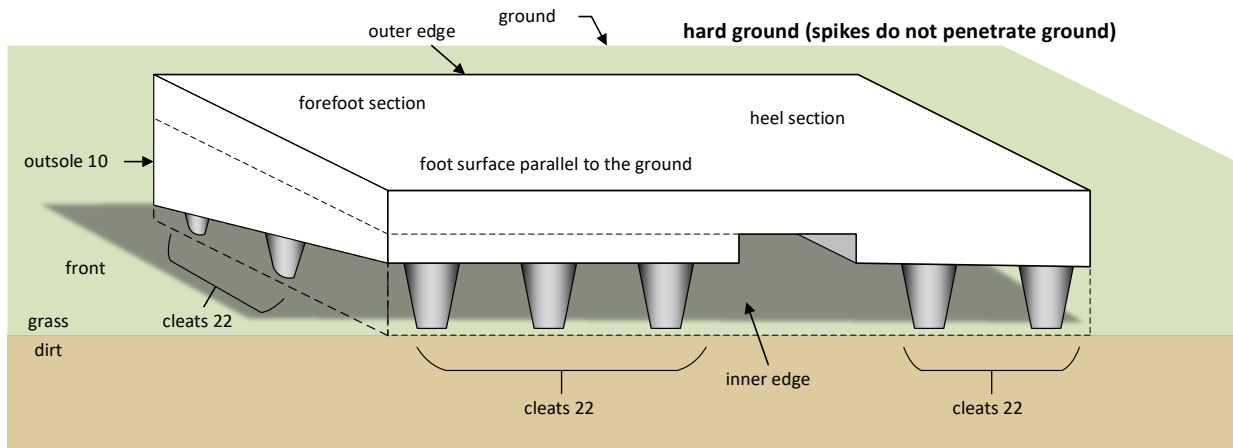
side 18 of the sole 14 are smaller than the cleats adjacent the inner side 20 of the sole 14 by an amount approximately equal to the difference in elevation between the outer side 18 and inner side 20 of the sole 14 so that when the wearer walks on a nonplaying surface, such as a concrete deck 24 as illustrated in FIG. 2, the foot of the wearer will be substantially level.” EX1007, 3:29-37. Rubin reiterates this concept several times, explaining that the relationship between cleat height and sole thickness has the effect that “when the golfer walks on a planar surface, his foot will be substantially level.” EX1007, Abstract; *see also id.*, 2:16-25 (difference in cleat size between inside and outside of sole is approximately equal to difference in elevation between the inside and outside of sole “so that when the golfer walks his foot will be substantially level”). Thus, in Rubin, the bottom of the cleats and the top of the sole are parallel to each other under all circumstances. EX2008 ¶143.

Rubin further discloses that when standing on a soft playing surface, “the golfer will imbed cleats 22 in a golf playing surface 32 when addressing a golf ball. The[] rearwardmost *foot* of the golfer will be tilted inwardly because of the wedge-shaped sole 14 of shoe 10. This will tend to provide a more satisfactory weight distribution when hitting the ball.” *Id.*, 3:56-62 (emphasis added). This inward tilt of the entire foot is shown in Figure 4, which shows both the heel and toe of the rear foot tilted inward based on the vertical line over the shoe:

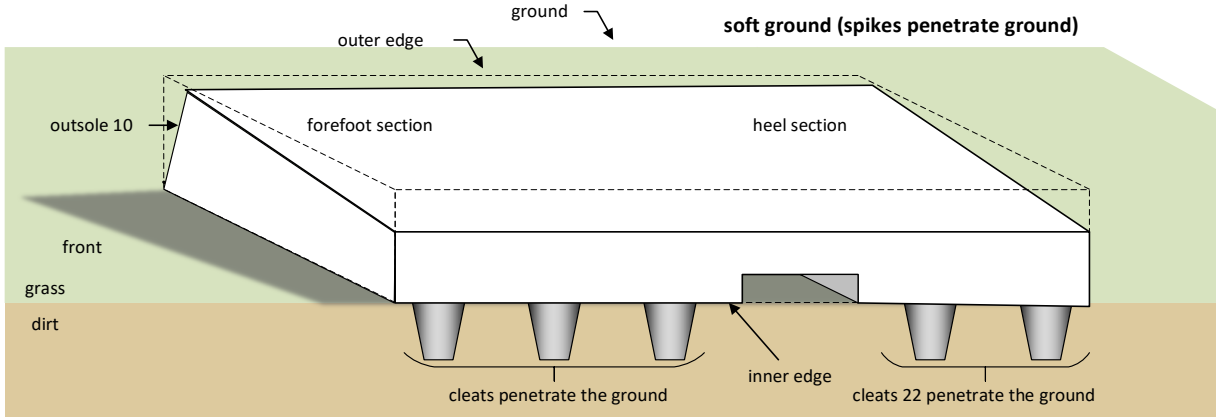


See also EX2008 ¶¶144-146.

Block diagrams showing the arrangement of Rubin's shoes on hard and soft ground are illustrated below.



EX2008 ¶148.



Id. ¶149. As these diagrams show, the entire foot surface of Rubin is parallel to the bottom of the cleats under all circumstances. Even when the cleats penetrate the ground, the foot surface remains parallel between the forefoot and the cleats. *Id.* ¶¶148-149.

III. PRIORITY DATE OF THE '786 PATENT

The '786 patent claims priority to U.S. Provisional Patent Application No. 61/450,485, filed on March 8, 2011. Patent Owner does not dispute, for purposes of this proceeding, that all of Petitioner's prior art pre-dates the priority date of the '786 patent.

IV. LEVEL OF ORDINARY SKILL

Petitioner asserts that a POSITA would have (1) at least a B.S. or equivalent degree related to industrial or product design and at least two years' experience designing or developing athletic shoes; or (2) at least five years designing or developing athletic shoes. Pet., 15. For purposes of this proceeding, Patent Owner does not dispute Petitioner's level of ordinary skill.

Here, Patent Owner's expert is the inventor of the '786 patent¹ and the CEO of Athalonz, Mr. Timothy Markison. As set forth in his declaration, Mr. Markison began designing and developing athletic shoes shortly before the priority date of the patent. EX2008 ¶¶17-25, 29, 42-43. His current knowledge and experience, which includes 13 years of designing and developing athletic shoes that embody the patent at issue here, far exceeds the proposed level of ordinary skill in the art. *Id.* ¶¶43-44. Moreover, given his familiarity with the technology at issue, Mr. Markison can readily understand and apply this level of ordinary skill at the time of the invention. EX2008 ¶44; *see Osseo Imaging, LLC v. Planmeca USA Inc.*, 116 F.4th 1335, 1341 (Fed. Cir. 2024) ("an expert can acquire the necessary skill level later and develop an understanding of what a person of ordinary skill knew at the time of the invention."). Based on Mr. Markison's duties as a registered patent attorney and licensed attorney, he can offer good faith and objective opinions on the issues in this proceeding. EX2008 ¶¶11-13, 26-30.

¹ Petitioner's expert failed to consider the education level of the inventor in analyzing the level of skill in the art, EX2010, 23:7-26:18, and had no opinion on whether the inventor here should be considered a POSITA, *id.*, 27:9-19.

V. RELATED MATTERS

Patent Owner is presently asserting the '786 patent in the following district court action: *Athalonz, LLC v. Under Armour, Inc.*, No. 2:23-cv-00193 (E.D. Tex.). Petitioner has also filed four other petitions for *inter partes* review on the four other patents asserted in the district court action: *Under Armour, Inc. v. Athalonz, LLC*, No. IPR2024-00637 (P.T.A.B. Mar. 4, 2024) (U.S. Pat. No. 11,013,291); *Under Armour, Inc. v. Athalonz, LLC*, No. IPR2024-00638 (P.T.A.B. Mar. 4, 2024) (U.S. Pat. No. 11,064,760); *Under Armour, Inc. v. Athalonz, LLC*, No. IPR2024-00639 (P.T.A.B. Mar. 4, 2024) (U.S. Pat. No. 11,375,768); *Under Armour, Inc. v. Athalonz, LLC*, No. IPR2024-00640 (P.T.A.B. Mar. 4, 2024) (U.S. Pat. No. 11,510,456).

VI. CLAIM CONSTRUCTION

A. Petitioner's Claim Constructions

Petitioner asserts that no terms require construction for purposes of this IPR but identifies constructions for two terms “for purposes of clarity only” based on its description of Patent Owner's infringement contentions. Pet., 12. Specifically, Petitioner states the following:

- “*a heel platform section that has a uniform height from an outer edge to an inner edge ... wherein the uniform height establishes a reference slope from the outer edge to the inner edge, the reference slope substantially parallel to a bottom surface of the apparatus/sole*”

(claims 1 and 5) and “the heel platform section has a uniform platform height, wherein, from a front edge of the heel platform to the rear edge of the apparatus/athletic positioning sole section, the uniform platform height has the reference slope” (claims 3 and 6)”:

Petitioner asserts that Patent Owner construes “inner,” “outer,” “front,” and “rear” edges of the heel platform/apparatus to mean “the edges of the portion of the shoe where the heel of the foot sits, not the inner and outer-most edges of the shoe or apparatus.” Pet., 12. Petitioner also asserts that Patent Owner construes this limitation “to include a heel platform section that includes some degree of curvature and height change from its inner edge to its outer edge and front to back, and differences in shape between the top and bottom surfaces of the heel.”

Pet., 12.

Petitioner’s construction of “inner edge” and “outer edge” to mean the “edges of the portion of the shoe where the foot sits” is consistent with how a POSITA would understand those terms in light of the specification. EX2008 ¶¶85, 90-91. As Mr. Markison explains, the ’786 patent consistently illustrates the inner and outer edges of the shoe in terms of how the shoe places the wearer in an athletic position, which requires reference to how the foot engages with the foot assembly. *Id.* ¶¶85-

89. In light of the specification, the “inner” and “outer edges” in the claims do not refer to the edges of the exterior of the shoe. *Id.* ¶¶90-91.

B. Construction of “Athletic Positioning Sole Section”

Patent Owner offers the following additional claim construction for the term “athletic positioning sole section.” To the extent that the Board does not agree with the Patent Owner’s offered construction, Patent Owner submits that this Petition still fails for the reasons described below.

Term	Meaning
“Athletic positioning sole section” (claim 5)	“a heel section higher than the toe section and the outside edge of the toe section higher than the inside edge of the toe section”

Independent claim 5 (and its dependent claims) requires an “athletic positioning sole section.” Even though each of the individual words in the phrase “athletic positioning sole section” have their own meaning in the abstract, the phrase as a whole does not have a clear, immediate ordinary meaning to a POSITA. EX2008 ¶83. However, its meaning is clear from the specification of the ’786 patent. *Id.* ¶84. Every embodiment in the specification consistently shows a heel section higher than the outside edge of the toe section higher than the inside edge of the toe section, and the specification provides an unambiguous definition:

an athletic positioning shape as formed by a heel section 21, a mid-foot section 23, and/or a toe section 25. In general, the athletic positioning shape has the heel section 21 higher than the toe section by a particular angle (e.g., θ_1 , . . .) and the outside edge of the shoe higher than the inside edge of the shoe by another angle (e.g., θ_2 , . . .) at the ball of foot and/or toe section of the shoe.

EX1001, 8:65–9:8 (emphasis added); EX2008 ¶80.

It is true that the specification also provides a result-oriented description of “athletic positioning”—that the athlete have “knees slightly bent, weight more on the inside of the legs than the outside of the legs, knees position aligned with ankles and hips” EX1001, 9:10-14; EX2008 ¶79. However, this general description does not describe the actual shape or positioning of the *shoe* at all, but rather describes one possible *result* of athletic positioning. A result does not accurately capture how to identify a shoe sole, particularly when the specification provides physical descriptors. And statements of intended results do not limit claims even when they appear directly in the claim language, let alone when they appear in the specification, as they do here. *E.g.*, *Bristol–Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1376 (Fed. Cir. 2001) (claim language that “is only a statement of purpose and intended result” and “does not result in a manipulative difference in the steps of the claim” is not limiting).

Patent Owner's proposal incorporates the specification's consistent descriptions of "athletic positioning" in terms of relative heights and slopes. For example, one embodiment of an "athletic positioning shape" is where "the heel platform may be 10 to 30 mm higher" than "the toe cup and/or the ball of foot cup." *Id.*, 13:38–45. Another embodiment discloses "an athletic positioning sole that includes an overall geometric shape" including "the heel of the sole [at] a particular height (e.g., h1, which may be 1's to 10's of mm) that slopes at an angle (e.g., Ø1) to the toe on the inside edge of the sole" which "may have a height of zero to a few millimeters." *Id.*, 17:54–62. More embodiments, still, are illustrated throughout, including Figures 3–15, 19–23, 44–47, 63–64, 87, 93–94, and 119–121. Every athletic position shown includes a heel section higher than the toe section and the outside edge of the shoe higher than the inside edge of the shoe. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1371 (Fed. Cir. 2003) ("[C]laims must be construed so as to be consistent with the specification, of which they are a part."). Allowing "athletic positioning" to have some broader or different meaning, or no meaning because of other limitations, is inconsistent with the patent's own description.

The institution decision found that Patent Owner's construction was unnecessary because the claims appeared to define the term "athletic positioning" themselves in the same manner. Paper 8 at 8-9. However, "interpretations that render

some portion of the claim language superfluous are disfavored.” *Power Mosfet Technologies, L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004). Finding that “athletic positioning” has no standalone meaning other than through descriptions provided elsewhere in the claims runs afoul of that canon of claim construction. Moreover, Petitioner’s expert agrees that “athletic positioning” has to mean something more than simply having the slopes described in the claims. EX2010, 53:1-20.²

Finally, Patent Owner’s construction is consistent across all three patents at issue in the IPRs—which all share a specification—that use the term “athletic positioning” in a similar way. The Board should adopt Patent Owner’s construction.

² While Petitioner’s expert indicated at his deposition that the term meant something to do with “weight distribution,” he did not offer any such construction in his declaration and was unable to provide any meaningful definition to a POSITA when questioned. He also did not actually perform any claim construction analysis and simply applied the constructions provided to him by counsel. EX2010, 45:15-13 (“I wasn’t hired to provide claim construction”). His testimony should therefore be afforded no weight in the claim construction analysis.

VII. PETITIONER HAS NOT PROVEN THAT ANY CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: Claims 1-8 Are Not Obvious Because Kim Does Not Disclose or Render Obvious a First, Second and Third Slope Greater than a Reference Slope.

Every challenged claim of the '786 patent requires having an angled support platform with three slopes, with “the first slope, second slope, and the third slope each greater than the reference slope.” EX1001, 43:9-11 (claim 1), 44:12-14. Petitioner has failed to cite any evidence that Kim discloses or renders obvious any of these slopes being greater than the reference slope. And, in fact, Kim does not disclose or render obvious any of these limitations and is instead directed to a different solution to the problem solved by the patent. EX2008 ¶¶174-177. Further, Kim does not disclose or render obvious a toe section lower than a heel platform section.

1. Kim Does Not Disclose a First Slope, Second Slope, or Third Slope Greater than a Reference Slope, as Required by Both Claims 1 and 5.

Ground 1 must fail as to all claims because Petitioner has not shown that Kim discloses or renders obvious a first, second, or third slope greater than a reference slope, limitations found in both challenged independent claims (claims 1 and 5). Because the reference slope is measured relative to the bottom surface of the apparatus (claim 1) or sole (claim 5), none of Kim’s embodiments disclose any of the first, second, or third slopes being greater than the reference slope.

Claims 1 and 5 of the '786 Patent require a reference slope that is “substantially parallel to the bottom surface of the” apparatus (claim 1) or sole (claim 5). EX1001, 42:64-65, 43:42-45. Thus, the reference slope is measured against the bottom surface of the shoe, not the ground. EX2008 ¶¶179-180. The two independent claims also require the first, second, and third slopes be “*greater* than the reference slope.” EX1001, 43:9-11, 44:12-14 (emphasis added). Thus, the first and third slopes must slope downward from the heel section towards the toe section and the second slope must slope downward from the outside edge to the inside edge to meet the claims. EX2008 ¶179.

The figures of the '786 patent and its specification all make clear that this is the only way to measure the slopes in the claims. In particular, Figure 8 is an isometric perspective of an embodiment of the invention. Claims 1 and 5 require that the reference line running across the heel platform be parallel to the bottom surface of the apparatus or sole. EX1001, 42:60-65, 43:38-45; thus, the plane extending from the heel platform to the front of the shoe, shown in a dashed line in Figure 8, is parallel to the bottom of the shoe. Figure 8 illustrates the third slope, which is represented by the angle θ_3 . In Figure 8, h_1 is the height of the heel platform section, and θ_3 is the angle of the third slope from the outside edge of the angled support platform to the plane extending from the heel platform to the front of the shoe, which is parallel to the bottom of the apparatus or shoe. EX2008 ¶¶64-70, 180. For

reference, each of the first, second, and third slopes are depicted in the annotated version of Figure 8, shown below:

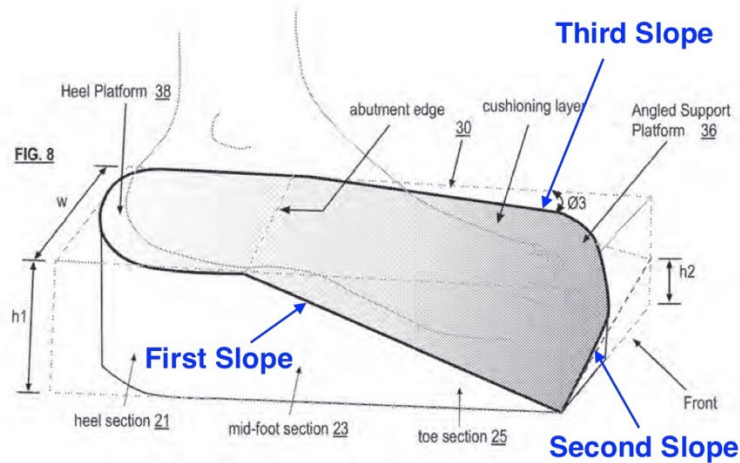


Figure 9 of the '786 Patent shows a side view of the same embodiment, and illustrates the first slope, represented by angle θ_1 . This figure illustrates that the outside edge of the shoe is at a lesser angle than the inside edge of the shoe, resulting in angled support platform 36 being inclined tilted toward the perspective of the viewer of Figure 9. EX2008 ¶¶64-70, 180. In Figure 9, θ_1 is the angle of the first slope, which is measured from the bottom surface of the apparatus or sole to the line running along the inside edge of the shoe. *Id.*

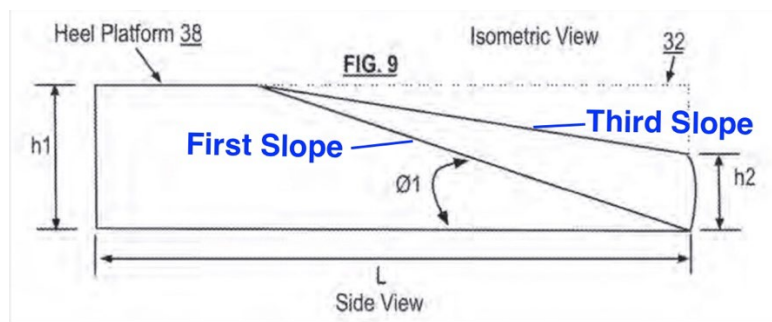
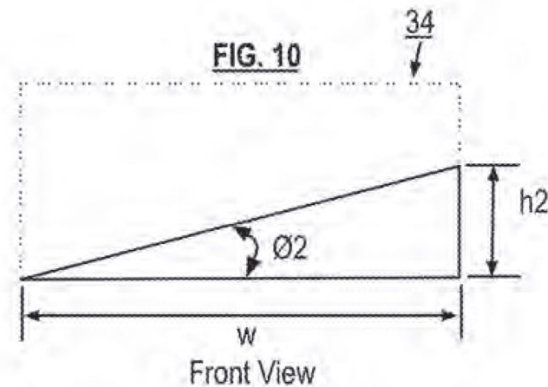
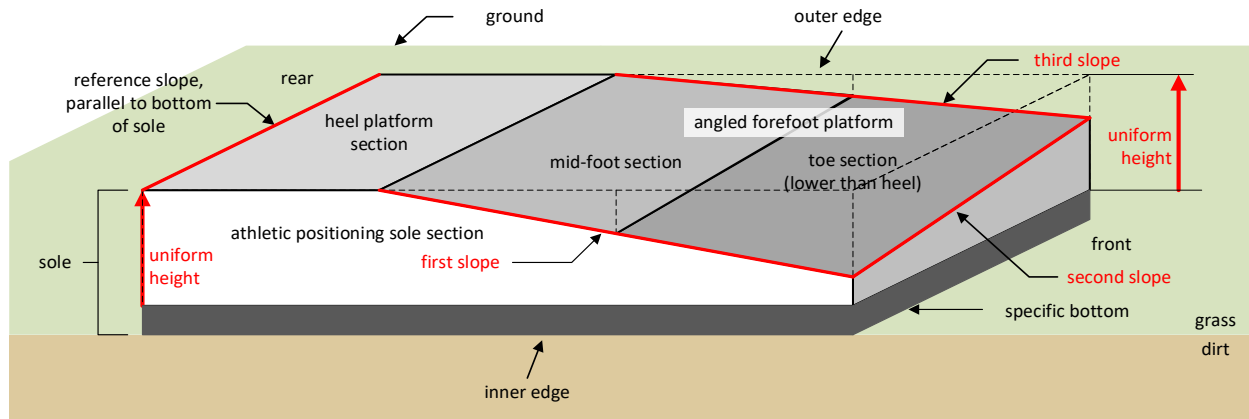


Figure 10 of the '786 Patent shows a front view of the same embodiment of the previous figures, and illustrates the second slope, represented by angle $\emptyset 2$. In Figure 10, $\emptyset 2$ is the angle of the second slope, which is measured from the inside edge of the bottom surface of the apparatus or sole to the outside edge of the bottom surface of the apparatus or sole. EX2008 ¶¶64-70, 180.



Figures 8-10 show that each of the first and second slopes are determined in relation to the bottom surface of the apparatus or sole, and the third slope is determined in relation to the heel platform (a plane parallel to the bottom surface). EX2008 ¶¶64-70, 180. In addition, Figures 8 and 9 demonstrate that the reference slope (which shares the slope of the heel platform) is parallel to the bottom surface of the apparatus or sole, in accord with the requirements of claims 1 and 5. Thus, the reference slope is zero relative to the bottom surface of the apparatus. *Id.* In contrast, Figures 8-10 clearly show that the first slope ($\emptyset 1$), second slope ($\emptyset 2$), and third slope ($\emptyset 3$), which are determined in relation to planes parallel to the bottom surface, are

non-zero and, thus, are greater than the reference slope. *Id.* The following block diagram illustrates the slopes claimed in the '786 patent:



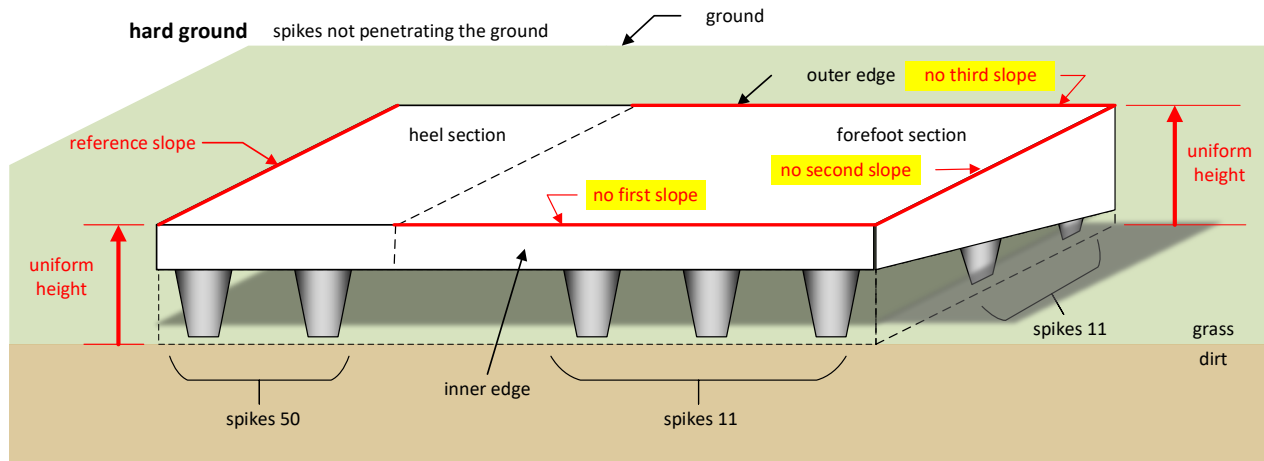
EX2008 ¶181.

None of Kim's embodiments disclose any of these slopes being greater than the reference slope. EX2008 ¶182. As discussed previously, Kim's outsole is level—parallel to the bottom surface of the apparatus—from the heel forward. *See* § VII.A.1. Kim's constant refrain is that the upper surface of the outsole is parallel to the bottom of the spikes (that are themselves parallel to the ground when on hard ground), which is a necessity to accomplish Kim's objective of permitting the golf player wearing the shoes to walk as they would in conventional golf shoes on hard surfaces. EX2008 ¶¶184-189.

As discussed previously, Kim makes the point that both the upper surface of the outsole and the bottoms of the spikes are parallel to the ground throughout its specification:

- Abstract: “the spikes respectively have heights so that an upper surface of the outsole is substantially parallel with a ground”;
- Paragraph [0014]: “a plurality of spikes protrude[] from a lower surface of the outsole, wherein: bottoms of the spikes (an upper surface of the outsole) are substantially parallel with the ground”;
- Paragraph [0033]: “the bottoms of the spikes . . . are substantially parallel with the ground E”;
- Paragraph [0045]: “the bottoms of spikes protruding from the outsoles of the golf shoes are parallel with the ground”;
- Paragraph [0038]: “when the golfer in a pair of the golf shoes 100 of the present invention walks on the hard ground such as a paved road, since the bottoms of the spikes 11 are substantially parallel with the ground E, the golfer in the golf shoes 100 of the present invention can stably walk on the hard ground in the same manner as the application of conventional golf shoes”;
- Paragraph [0015]: “the bottoms of the spikes are substantially parallel with the ground, thereby allowing a golfer in the golf shoes to concentrating his/her weight during the address and swing phases on the inner edges of soles of feet and assisting the golfer in performing a stable swing motion”

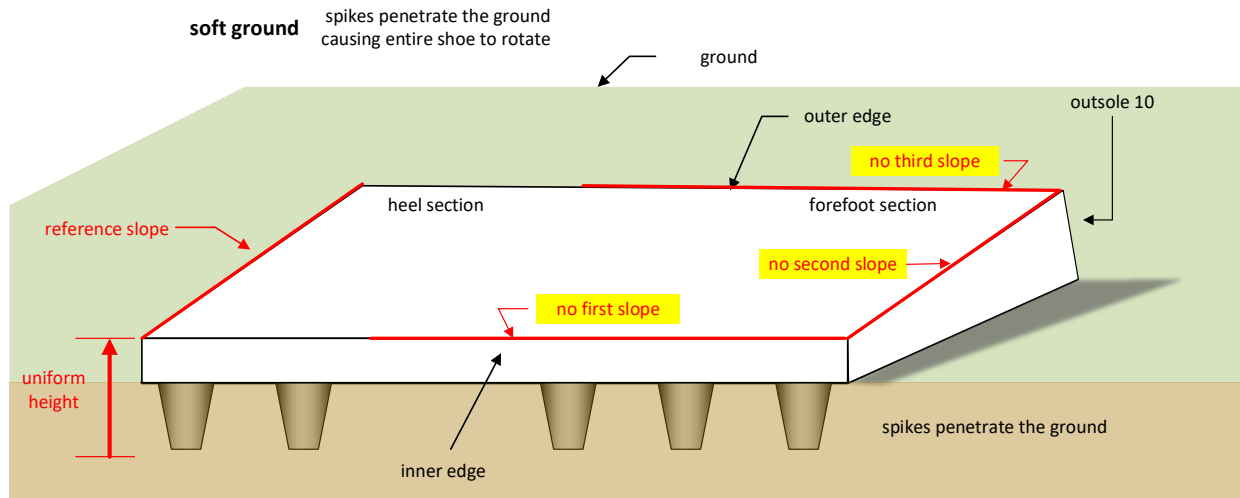
Because the outsole is parallel to the bottom of the spikes across its surface, lines along any of its edges will be parallel to the bottom surface of Kim's shoe. EX2008 ¶187. This can be seen in the following figure, which represents Kim's shoe, identifying where the reference, first, second, and third slopes are.



EX2008 ¶182.

As shown in the figure above, lines along the inner and outer edges of the outsole, where the first and third slopes are determined, are parallel to the bottom of the shoe. EX2008 ¶187. And a line drawn along the front of the shoe, where the second slope is determined, is parallel to the bottom of the shoe. *Id.* Thus, every one of the first, second, and third slopes is zero. *Id.* ¶188. Each is the same, not greater, than the reference slope. Accordingly, Kim fails to disclose a first, second, or third slope greater than the reference slope.

Nothing changes about the actual shoe of Kim when it is on soft ground, as depicted in Figure 5b, with respect to the claims. EX2008 ¶¶189-193. This is shown in the block diagram below:



EX2008 ¶189. Because the shoes are being worn on soft ground in Figure 5b, the longer spikes on the inside edge sink further into the ground, with the result that the shoes are at an angle relative to the ground. *Id.* ¶189. However, the entire foot platform of Kim remains parallel to the bottom of the cleats—which is the correct way to measure the slopes in the claims. *Id.* ¶¶191, 195. Therefore, Kim still fails to disclose any of the three slopes.

Finally, even if the slopes of the claims are measured relative to the *ground* and not the bottom surface of the shoes (which the claims require), Kim still fails to disclose the required slopes. As shown above, with respect to the ground, the reference slope is no longer substantially parallel when the cleats sink into the ground. EX2008 ¶¶192-194. There is no first slope or third slope greater than the

reference slope in this arrangement because the heel and toe section sink into the ground equally such that the inner and outer edges (where the first and third slopes are determined) remain parallel to the ground (unlike the reference slope). *Id.* And the second slope remains parallel to the reference slope, i.e., it also is not greater than the reference slope. *Id.*

2. Petitioner Has Not Proven Claims 1 or 5 Are Otherwise Obvious in View of Kim.

Petitioner's analysis relies solely on obviousness, but never actually identifies any modifications or changes to Kim that a POSITA would make to render the claims obvious. Therefore, Petitioner should be held to the arguments in the petition and should not be permitted to argue in reply for new modifications to Kim that it did not previously describe. Based on the actual arguments presented, the analysis above shows that Kim does not render the claims obvious.

However, Petitioner's expert appears to rely in places on a "what if" embodiment based on Kim that modifies its consistent disclosure regarding the location of the spikes. *See* EX1002 ¶¶212-214; EX2008 ¶¶196-199. To the extent Petitioner is allowed to make new arguments based on this disclosure, those arguments should still fail. These modifications to Kim come from Petitioner's expert incorrectly interpreting Kim's suggestion (in a single paragraph at the end of the specification) that the incline plane can be formed only at the front portion of the outsole (EX1005 ¶46) to mean that Kim could show a shoe with a heel higher than

the toe or a heel without the spikes that are disclosed throughout Kim as extending through the heel. EX2008 ¶¶196-200.

This interpretation is inconsistent with what Kim actually discloses and would result in an illogical design. *Id.* ¶201. For this to be true, as Mr. Markison explains, Kim would end up having one of the following arrangements:

FIG. 2

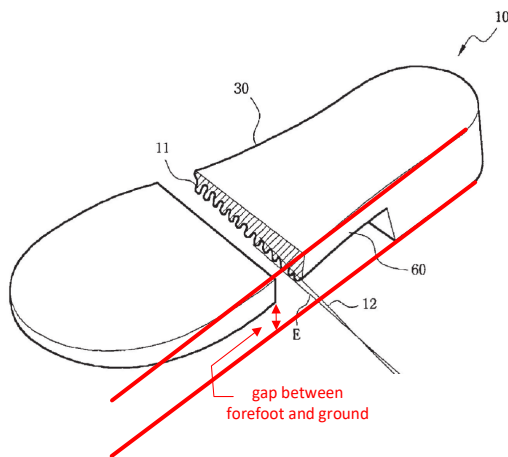
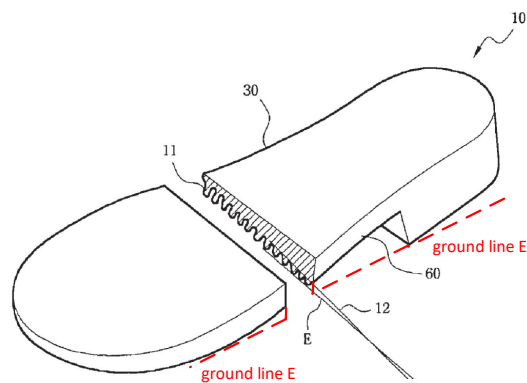
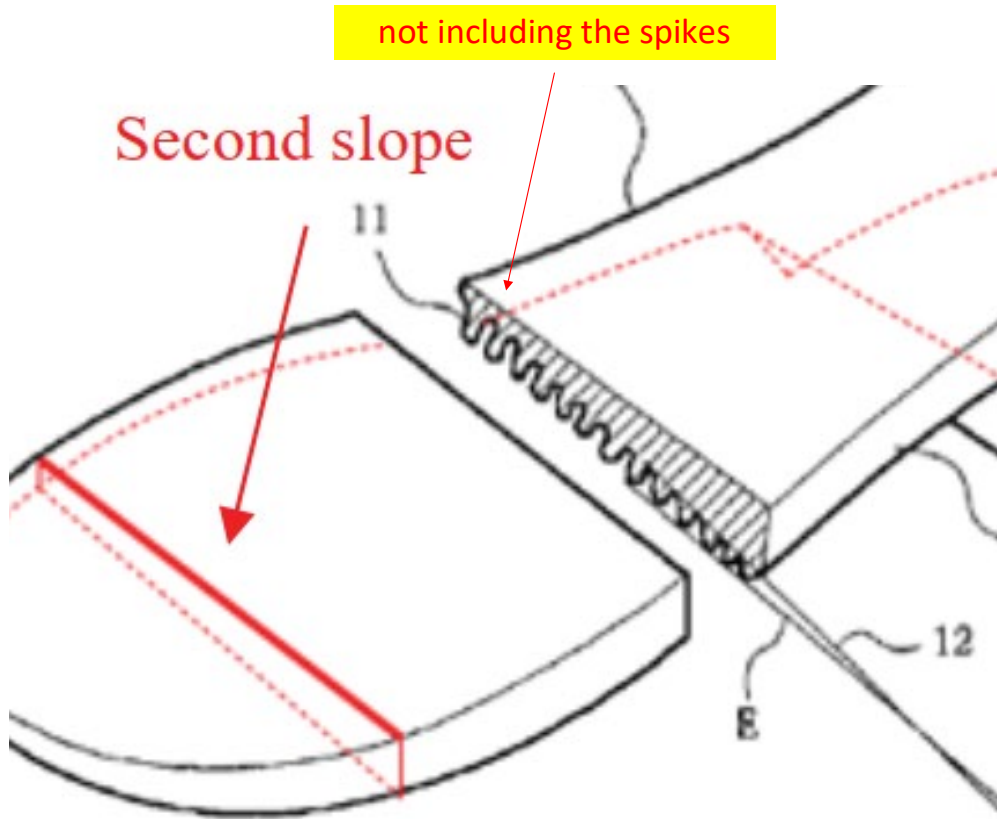


FIG. 2



EX2008 ¶¶201-204. A POSITA would understand that neither of these arrangements actually represents the entirety of the shoe because it would result in either a large gap between the forefoot and the ground or between a portion of the heel and the ground. *Id.* Indeed, Petitioner's expert's own annotations recognize the issues with these arrangements and attempt to draw a "second slope" onto Figure 2 only by removing the spikes entirely:

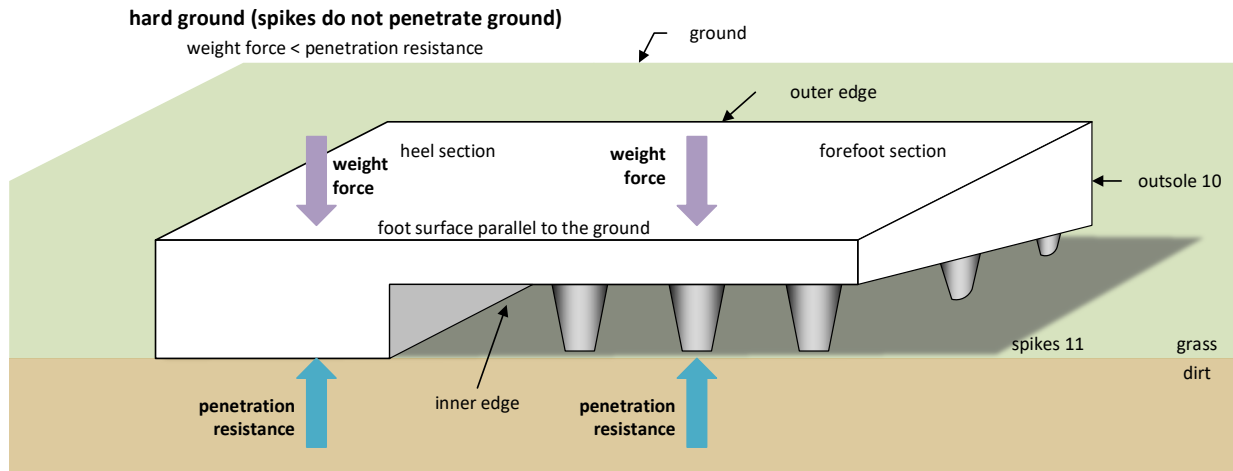


EX2008 ¶¶205-211 (further annotating EX1002 at 37). Thus, neither of these “what if” embodiments is actually disclosed by Kim in any meaningful way.

Even if they were disclosed, they would not render the claims obvious. Block diagrams illustrating the two “what if” embodiments that Mr. Delgatty suggests are disclosed by Kim are shown and discussed below.

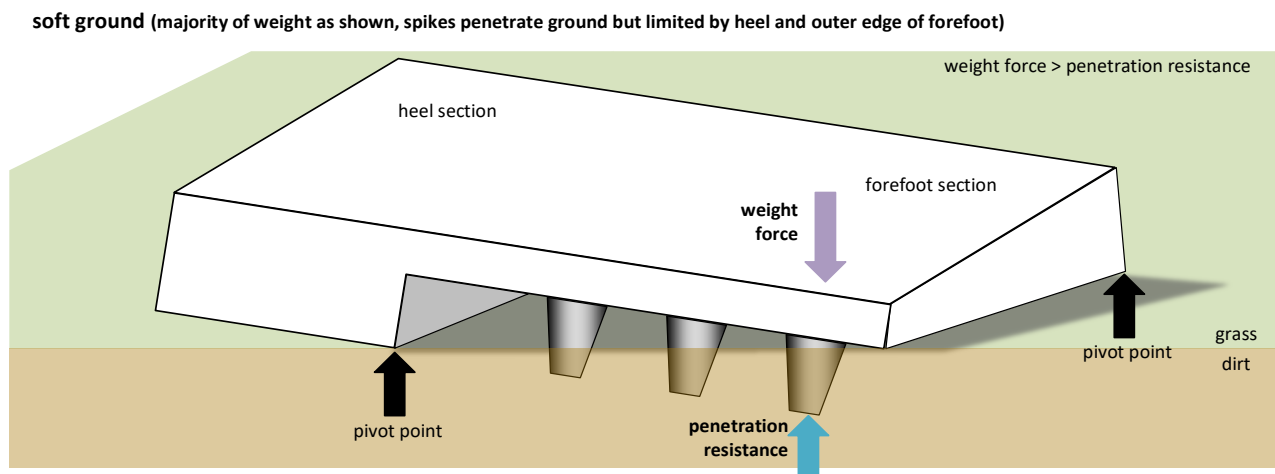
a. No Spikes in Heel

A block diagram showing the “what if” embodiment of Kim without cleats in the heel is shown below.



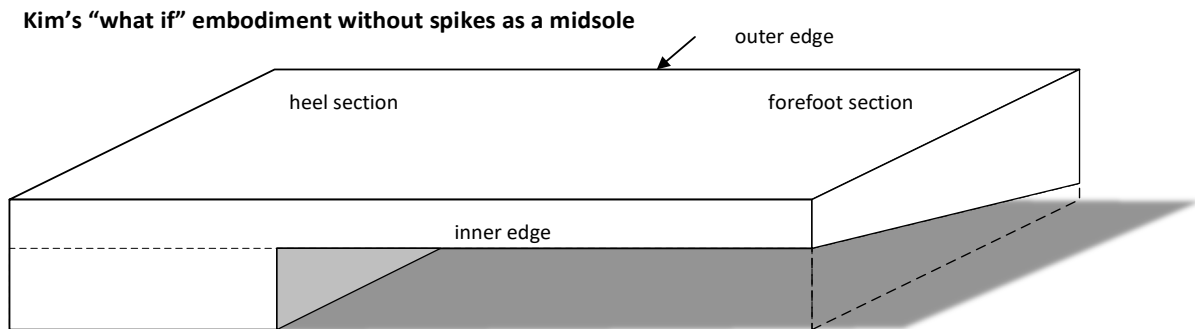
EX2008 ¶¶117-119. If there were no spikes in the heel of Kim, nothing would change about the analysis in the previous section; the entire foot surface would remain parallel to the bottom surface of the shoe. EX2008 ¶118.

Even assuming the slopes are measured relative to the ground, this embodiment would not render the claims obvious, however. As Mr. Markison explains, this would result in the heel lifting off the ground, leaving the heel section of the shoe parallel with the toe section and no “second slope.” EX2008 ¶¶119-120.



b. No Spikes in Midsole

A block diagram showing the second “what if” embodiment of Kim without spikes in the midsole is shown below:



EX2008 ¶212. This embodiment does not render the claims obvious either—a POSITA would understand that there are no slopes formed by the foot platform in this embodiment because any slopes are only present on the bottom outsole of the shoe and not on the support platform. *Id.* ¶¶213-214.

3. Claims 2-4 and 6-8 are Patentable over Kim.

Because independent claims 1 and 5 are patentable over Kim, the more specific dependent claims are also patentable for the same reasons. EX2008 ¶216.

B. Ground 2: Claims 1-8 Are Not Obvious Because Dufour Fails to Disclose a Third Slope that is Greater than a Reference Slope or a Separate Midfoot Section (Claims 1-8).

Petitioner primarily relies on Figures 9-12 of Dufour in its attempt to show that Dufour discloses all the limitations of the challenged claims. *See generally* EX2010, 101:13-102:2 (Petitioner’s expert relies only on Figs. 9, 10, and 11 to show three slopes). These figures represent two separate embodiments. The first is

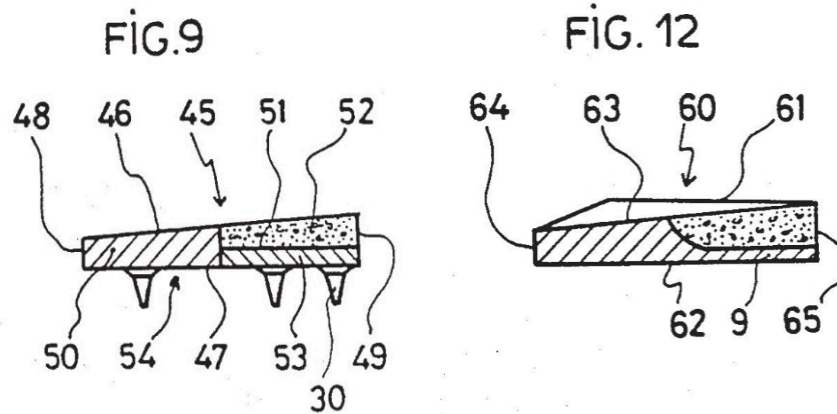
depicted in Figures 8-10, which has a consistently upwardly inclined sole from the inner edge to the outer edge running the full length of the shoe (i.e., the front to the back of the shoe). The second is depicted in Figures 11 and 12, which has a tilted support surface at the front of the shoe and a flat plantar support zone (or platform) at the rear of the shoe. Neither of these embodiments, nor any combination of them, discloses several limitations found in the two challenged independent claims of the '786 Patent because Dufour is directed to a different solution to the problems solved by the patent. EX2008 ¶¶217-221.

As explained below, Petitioner has not shown how Dufour discloses a first or a third slope greater than a reference slope or a mid-foot section of the shoe. For these reasons, the Board should decline to invalidate any of the challenged claims over Dufour (or any combination based upon it).

1. Dufour Fails to Disclose a Third Slope that Is Greater than a Reference Slope, as Required by Claims 1 and 5.

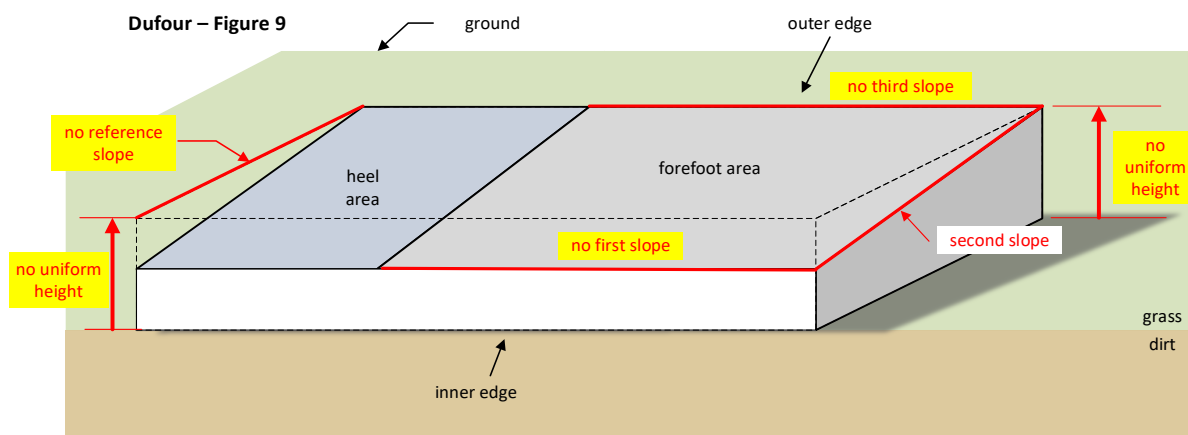
The Petition must fail because neither of the Dufour embodiments upon which Petitioner relies discloses a third slope greater than a reference slope. Rather, both embodiments clearly demonstrate that the third slope is parallel to the ground, just like the reference slope. In other words, the third slope is not greater than the reference slope.

Figures 9 and 12 show cross sections of the two shoe embodiments, looking from the front of the shoe toward the heel, as shown below:



As can be seen from the figures, the support surfaces—46 in Fig. 9 and 63 in Fig. 12—are inclined upward from the inside edge (48 in Fig. 9 and 64 in Fig. 12) to the outside edge (49 in Fig. 9 and 65 in Fig. 12) of the shoe. EX2008 ¶¶223-226.

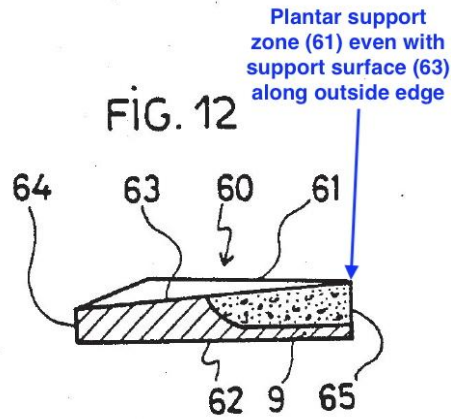
First, Figure 9 does not disclose many of the claim requirements. In Figure 9, the entire support surface is angled upward from the inner edge to the outer edge of the shoe, resulting in the entire foot of the wearer being tilted inward. EX2008 ¶¶223-224. A block diagram illustrating the Figure 9 embodiment in terms of the patent is shown below:



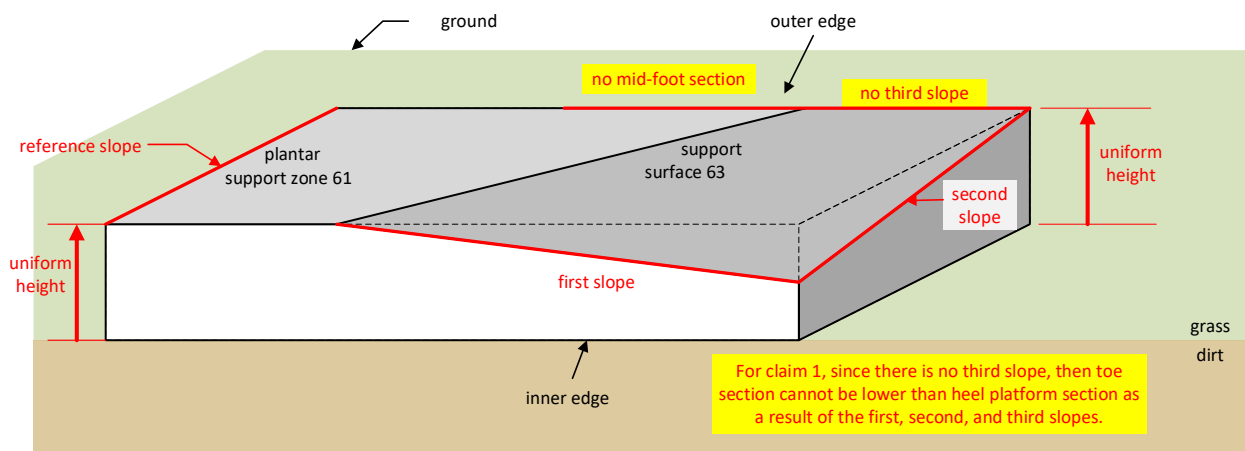
EX2008 ¶227. The Figure 9 embodiment clearly lacks a “heel platform section having a uniform height from an outer edge to an inner edge” and a “reference slope substantially parallel to a bottom surface of the” apparatus or sole. As is apparent from the cross-sectional figure, the height of the heel platform increases from the inner edge to the outer edge. Thus, the heel platform does not have a “uniform” height across it. EX2008 ¶228. In addition, the platform is at an angle relative to the ground from the inner to the other edge across the support surface from the front to the back of the shoe, including at the heel where the reference slope is measured. Therefore, Figure 9 does not disclose a reference slope that is substantially parallel to the bottom surface of the apparatus or sole. *Id.*

Second, Figures 11 and 12 also fail to meet many of the claim requirements. Figures 11 and 12 illustrate the same embodiment. EX2010, 102:14-103:3, 105:17-19. In Fig. 12, plantar support zone 61, where a substantial portion of the foot rests, is higher than support surface 63 near to the inside edge of the shoe (48). Importantly, at the outside edge of Fig. 12 (65), the support surface 63, which extends forward to the front of the shoe, is at the same height as plantar support zone 63, which extends backward to the heel of the shoe. EX2008 ¶231. Thus, at the outside of the sole (65) where the little toe sits, the toe section of the embodiment shown in Figure 12 is at the same height as the plantar support zone 61, which supports the heel of a foot and

a good portion of the arch of a foot. This can be seen at the upper right-hand corner of Fig. 12:



A drawing showing a perspective view of the embodiment depicted in Figure 12 helps illustrate the third slope relative to the other parts of the shoe:



EX2008 ¶232; *see also id.* ¶¶129-135. As can be seen from the figure above, support surface 63 angles upwardly. *Id.* As in Figure 12, the support surface 63 rises from the inside edge until it reaches the upper, outer edge of the shoe, at the same height as the plantar support zone 61. It is the same height all along the outer edge of the support surface 63 and plantar support zone 61, from the front to the back of the

shoe. EX2008 ¶¶229-234. Because the upper outer edge of both the support surface 63 and plantar support zone 61 have the same height from the toe to the heel of the shoe, the third slope, which is determined along that line, is zero. *Id.* ¶234. Therefore, Figures 11 and 12 of Dufour—which are the same embodiment—do not disclose a third slope greater than a reference slope.

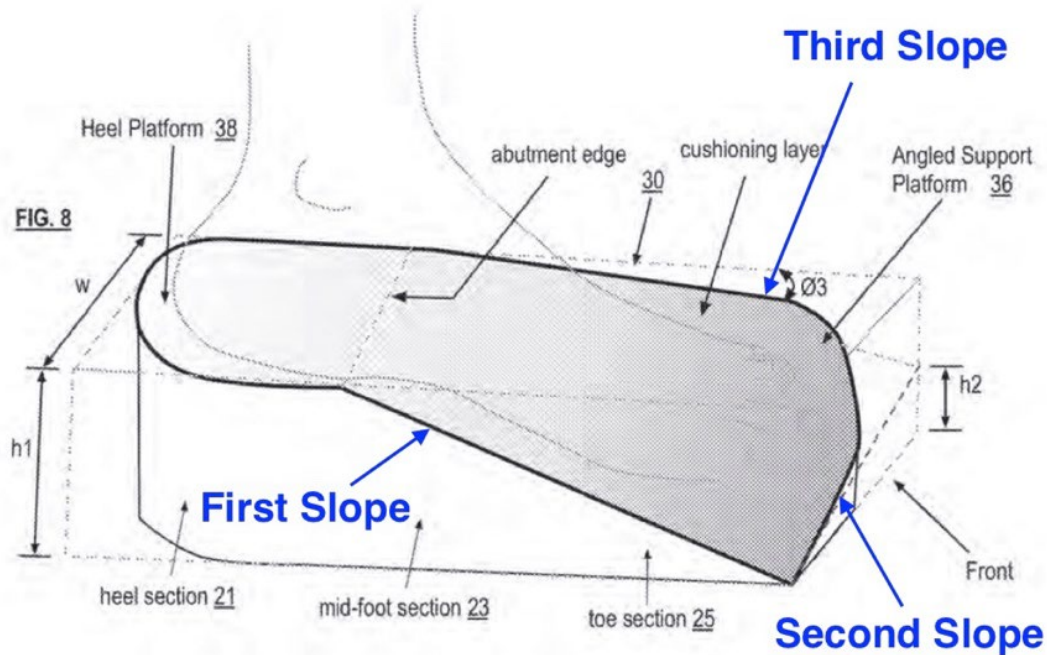
Therefore, in both embodiments of Figs. 8-10 and 11-12, the heel height and the toe height are the same at the outside edge of the shoe, where the third slope is determined. Because the heel and toe are at the same height along the outside edge, the third slope is parallel to the bottom of the shoe—it has substantially no slope with respect to the bottom of the shoe, which is the same as the reference slope. Petitioner has not cited any disclosure in Dufour or expert testimony, or made any arguments, to the contrary. Dufour does not disclose or render obvious a third slope greater than the reference slope, as is required by claims 1 and 5.

Finally, Petitioner presented no analysis and offered no expert testimony about combining the various embodiments to modify Dufour to create a new shoe that had the claimed slopes. As explained above, each of the individual embodiments of Dufour lacks critical claim elements standing alone. Mr. Markison provides a detailed explanation about why a POSITA would not have found it obvious to combine the various embodiments to pull different portions together and redesign a new shoe that met the elements of the claims here. EX2008 ¶¶237-250. Petitioner's

expert does not even offer a conclusory explanation of such a combination; instead, he simply mixes and matches embodiments without providing any rationale or reasoning, which is improper. *See, e.g., Abiomed, Inc. v. Maquet Cardiovascular, LLC*, IPR2017-01204, -01205, Paper 8 at 8-12 (P.T.A.B. Oct. 23, 2017) (“Petitioner’s challenge treats the various features of [the prior art]’s different embodiments as if they are interchangeable with one another” and the failure to “explain sufficiently why one skilled in the art would have found it obvious to combine those teachings” rendered analysis unreliable).

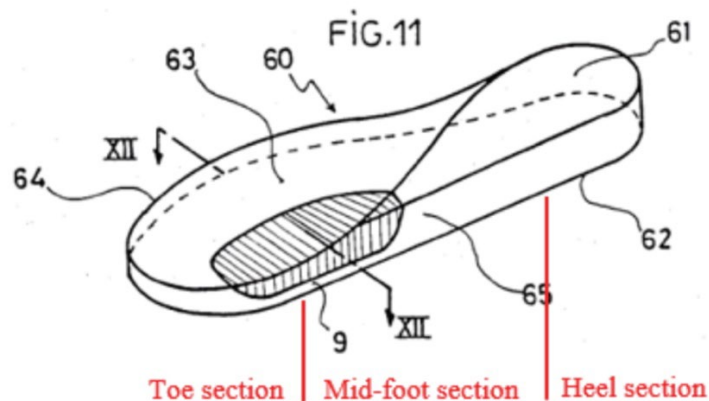
2. Dufour Fails to Disclose a Toe and Mid-Foot Section that Form an Angled Support Platform that Has the Three Slopes, as Required by Claims 1 and 5.

Claims 1 and 5 each require that the mid-foot section and the toe section form an angled support platform that has the three claimed slopes. EX1001, 43:1-9, 44:2-12.; EX2008 ¶251. More particularly, according to the independent claims, the angled support platform “has” a first slope and a third slope which measure the slope of the angled support platform “along the inner edge of the apparatus” and “along the outer edge of the apparatus,” respectively. EX1001, 43:1-9, 44:2-12. Both independent claims require that the first and third slope run from the toe section, along the midfoot section to where the heel platform meets the mid-foot section. EX2008 ¶251. That the first and third slopes measure angles of the *angled* support platform is demonstrated by annotated Figure 8 of the ’786 Patent:



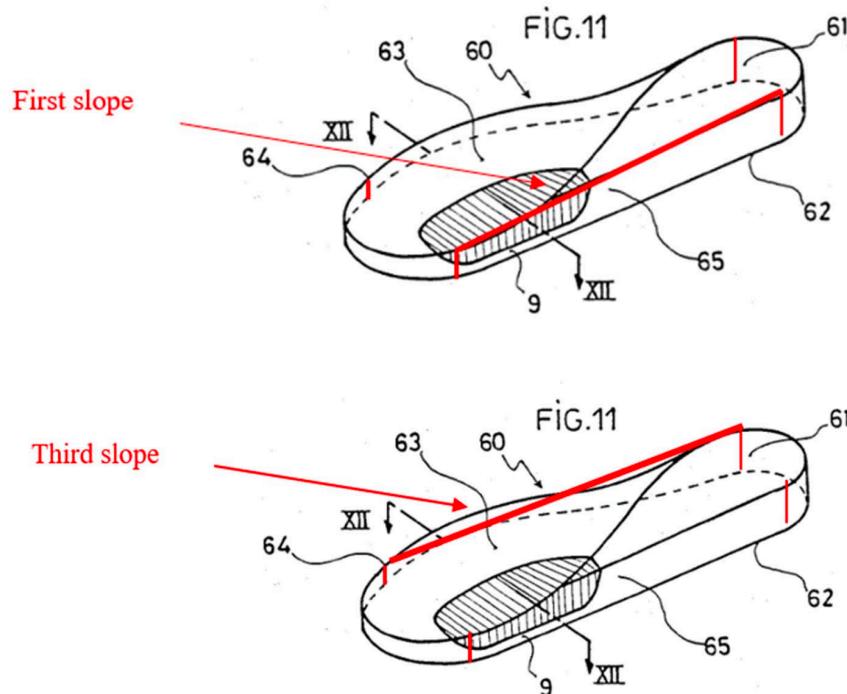
See also EX2008 ¶251.

As an initial matter, Petitioner fails to expressly identify any element that corresponds to the angled support platform. EX2008 ¶252. Instead, Petitioner supplies an arbitrary annotated version of Dufour's Figure 11 that purports to identify a toe section, mid-foot section, and heel section, as shown below.



Pet. at 32; *cf. id.* at 33-35 (discussing limitation 1.5 and failing to identify any angled support platform). This is a crucial omission, for two reasons. First, claims 1 and 5 of the '786 Patent expressly require an angled support platform, and Petitioner has failed to identify one or even argue that it would have been obvious from Dufour. Second, as described in more detail below, claims 1 and 5 require that the angled support platform “ha[ve]” the first and third slopes which run along its inner and outer edges, and have the required relationship to the claimed reference slope.

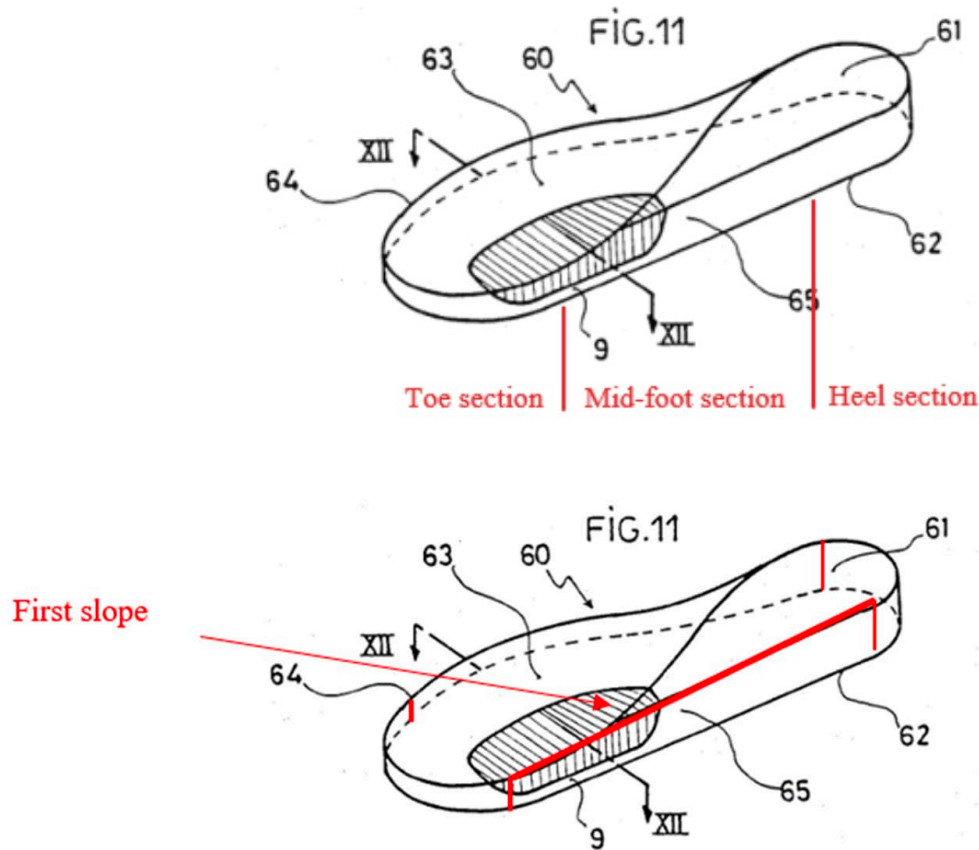
Petitioner completely ignores the requirement that the first and third slopes measure the slopes of the angled support platform. Rather, its figures show the first and the third slopes running from the front of the shoe, well into the *flat* heel section, i.e., the plantar support zone, 61, as is shown below:



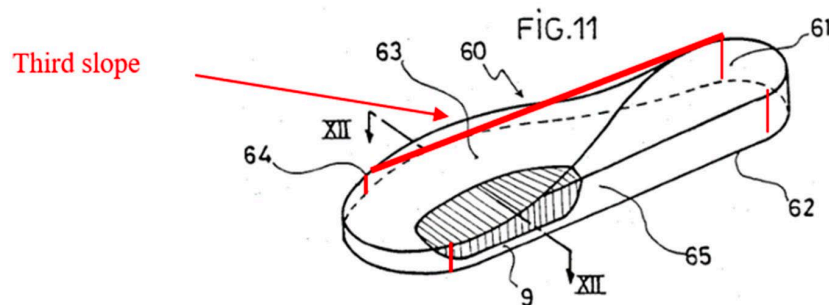
Pet. at 34-35; *see also* EX2008 ¶¶251-252.

Petitioner's arbitrary line drawing fails because the first and third slopes in the claims measure slopes that run from the front of the shoe to the point where the mid-foot section and heel platform section meet. They do not measure a slope that ends at an arbitrary point somewhere within the heel section. Because the first and third slopes Petitioner draws onto Dufour extend into the plantar support zone, which is parallel to the ground, the first and third slopes cannot accurately represent the slopes of an angled support platform. EX2008 ¶¶252. Petitioner's lines are inaccurate and fail to show that this embodiment of Dufour discloses the first and third slopes required by claims 1 and 5. *Id.*

The reason Petitioner drew its lines as it did is obvious. If the "first slope," as labeled by Petition, were drawn to the edge of the plantar support zone, 61, that would be well *inside* the mid-foot section identified by Petitioner, not to the rearward edge of the mid-foot section identified by Petitioner. This can be seen by comparing the two relevant annotated figures on which Petitioner relies:

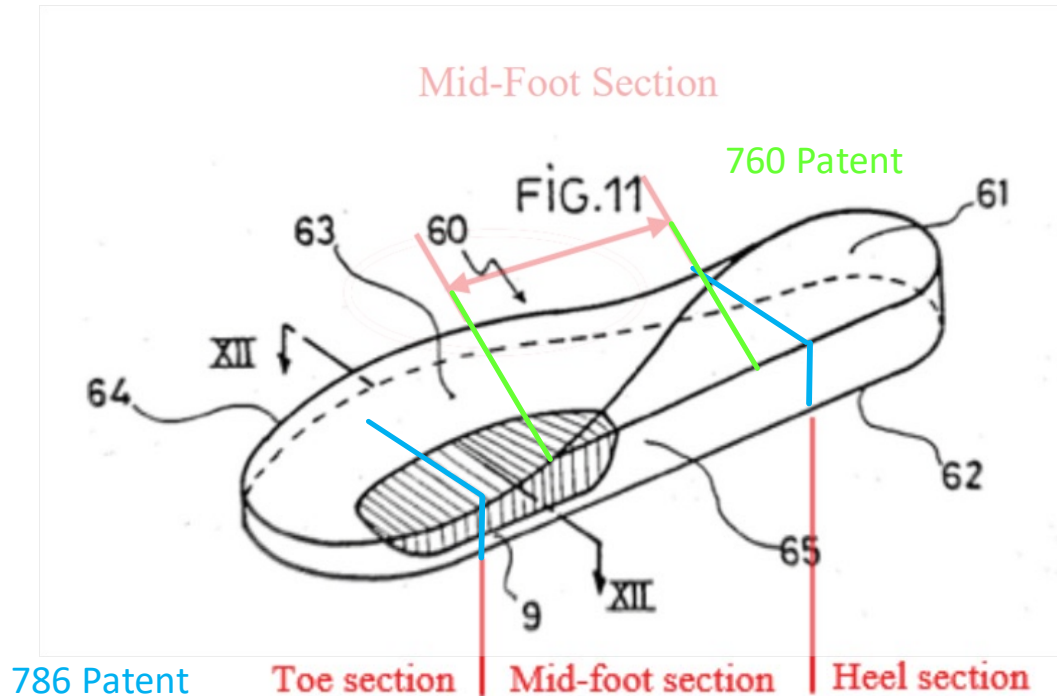


EX2008 ¶254 (citing Pet. at 32, 34). Similarly, Petitioner’s “third slope as labeled by Petition, but the slope on the inner edge of the forefoot section is the first slope” extends well past the edge of angled platform 63, into the heel section of the outsole:



Petitioner’s arbitrary line drawing can further be seen when comparing its mid-foot section between this proceeding and the proceeding on the related ’760 patent, which

shares a common specification and many of the same claim terms. There, Petitioner drew the mid-foot section differently than in both of the figures above:



See EX2008 ¶¶257-262.

Simply put, Petitioner has not shown that Dufour discloses or renders obvious a mid-foot section and a toe section that form an angled support platform that has the three slopes of claims 1 and 5. Accordingly, Petitioner has failed to show Dufour renders obvious any of claims 1-8.

3. Claims 2-4 and 6-8 are Patentable over Dufour.

Because independent claims 1 and 5 are patentable over Dufour, the more specific dependent claims are also patentable for the same reasons. EX2008 ¶264.

C. Ground 3: Claims 1-8 Are Not Obvious Because Rubin Fails to Disclose or Render Obvious a First, Second, or Third Slope Greater than a Reference Slope (Claim 1-4).

Rubin discloses a golf shoe with variable height of the sole and variable height of the cleats, which are inversely proportional. Similar to Kim, Rubin's shoe is depicted in arrangements that show the shoe on a hard surfaces and soft ground. EX2008 ¶265. Regardless of whether Rubin's shoe is on a hard surface or soft ground, Rubin's disclosure is insufficient to disclose or render obvious several limitations of the independent claims. *Id.* ¶¶267-274.

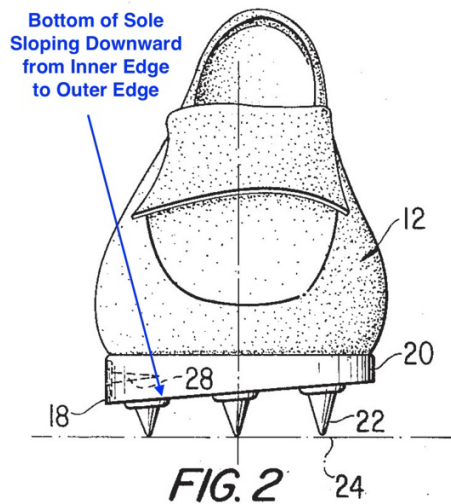
1. Rubin Does Not Disclose a First, Second, or Third Slope Greater than the Reference Slope.

Ground 3 must fail as to all claims because Petitioner has not shown that Rubin discloses or renders obvious a first, second, or third slope greater than a reference slope, limitations found in both challenged independent claims (claims 1 and 5).

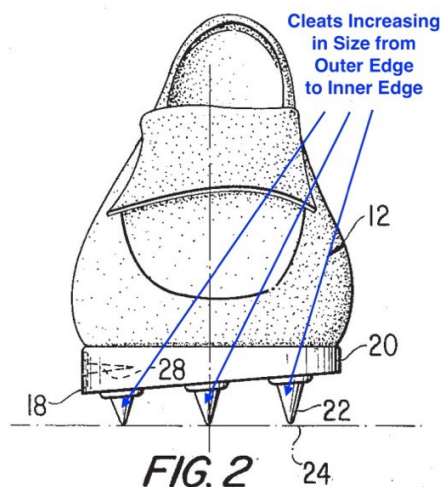
As discussed previously, the reference slope is measured relative to the bottom surface of the apparatus (claim 1) or sole (claim 5). *See supra* § VII.A.1 (discussing the correct interpretation of the claims in Kim analysis). In brief, claims 1 and 5 of the '786 Patent require a reference slope that is "substantially parallel to the bottom surface of the" apparatus (claim 1) or sole (claim 5). EX1001, 42:64-65, 43:42-45. Thus, the reference slope is measured against the bottom surface of the *shoe*, not the *ground*. The two independent claims also require the first, second, and

third slopes be “*greater* than the reference slope.” *Id.*, 43:9-11, 44:12-14 (emphasis added). Thus, the first and third slopes must slope downward from the heel section towards the toe section and the second slope must slope downward from the outside edge to the inside edge to meet the claims. The first, second, and third slopes are also measured relative to the bottom surface of the shoe, and not with reference to the ground. *Supra* § VII.A.1.

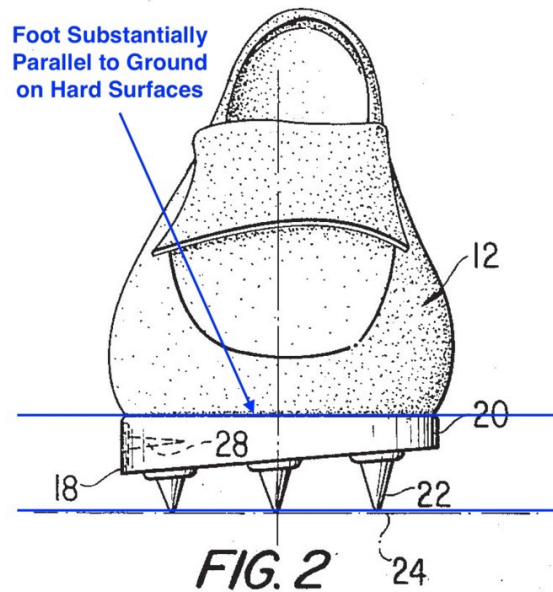
None of Rubin’s embodiments disclose any of these slopes being greater than the reference slope. Rubin’s disclosure makes clear that the top of the sole, where the wearer’s foot rests, is substantially parallel to the ground. EX2008 ¶274. As described below, the flat-to-the-ground top of the sole results from an inverse proportionality of the thickness of the sole to the height of the spikes. Rubin discloses a sloped bottom of the sole, explaining that this “outer side 18 of sole 14 extends downwardly from the shoe upper 12 to a lower elevation than the inner side 20 of [the] sole.” EX1007, 3:9-11. This is illustrated in an annotated version of Figure 2 showing the bottom of the sole running at an angle downward from right to left:



Rubin further explains that “[p]rojecting downwardly from the bottom of sole 14 are a plurality of cleats 22. . . . Cleats 22 adjacent the other side 18 of the sole 14 are smaller than the cleats adjacent the inner side 20 of the sole 14 by an amount approximately equal to the difference in elevation between the outer side 18 and inner side 20 of the sole 14” *Id.*, 3:24-37. This is illustrated in another annotation of Figure 2 showing cleats increasing in height from outer edge to inner edge:



The combination of the sole decreasing in thickness and the cleats increasing in height is “that when the wearer walks on a non-playing surface, such as a concrete deck 24 as illustrated in FIG. 2, the foot of the wearer will be substantially level,” i.e., parallel to the ground, as shown below:



Id., 3:34-37; EX2008 ¶¶275-280.

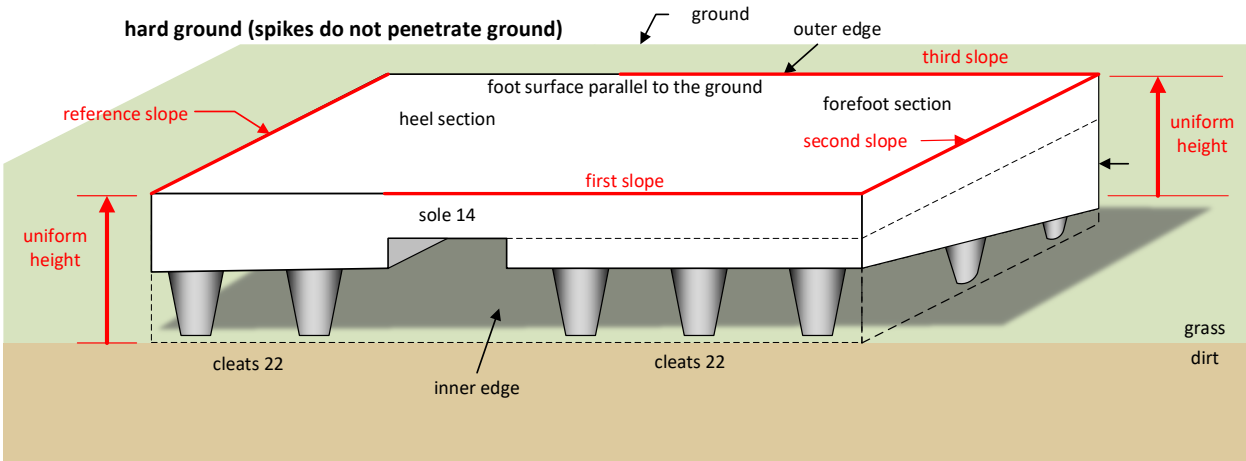
This concept of providing an outsole surface that keeps the foot of the wearer parallel to the ground is emphasized in Rubin’s disclosure. The following passages in Rubin reinforce that on hard surfaces, the foot of the golfer wearing Rubin’s shoe is “substantially level” to the ground:

- “The cleats adjacent the outer side of the sole are smaller than the cleats adjacent the inner side of the sole by an amount approximately equal to the difference in elevation between the outer and inner sides of the

sole so that when the golfer walks on a planar surface, his foot will be substantially level.” EX1007, Abstract.

- “However, the cleats adjacent the outer side of the sole are smaller than the cleats adjacent the inner side of the sole by an amount approximately equal to the difference in elevation between the outer and inner sides of the sole so that when the golfer walks his foot will be substantially level.” EX1007, 2:16-25.
- “In between shots, and when walking on other planar surfaces, shoe 10 on the foot of the golfer will remain substantially level as illustrated in FIG. 2. This is due to the difference in sizes of the cleats 22 and will preclude undue strain on the golfer's foot.” EX1007, 4:4-8.

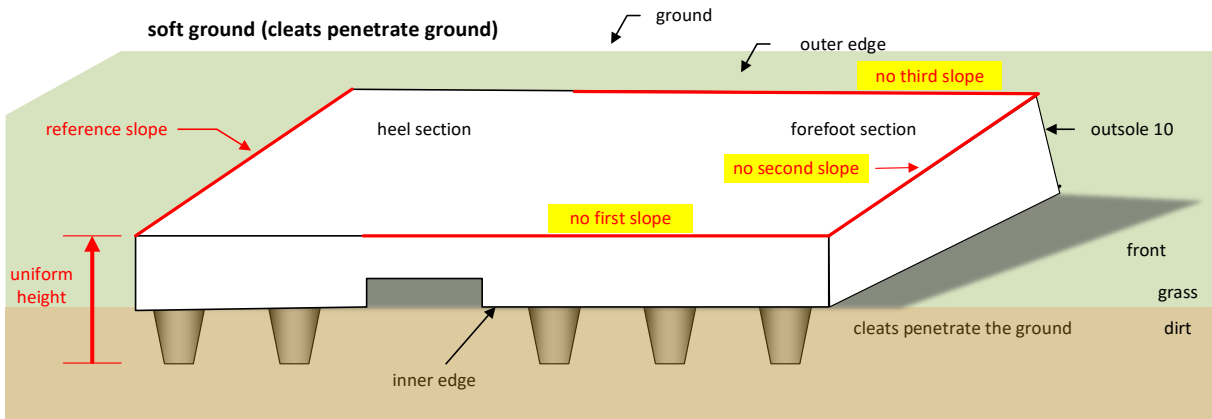
In short, Rubin consistently describes how the foot of the golfer wearing its shoe will be substantially level, i.e., parallel to the ground. EX2008 ¶277. This can be seen in the following figure, which represents Rubin’s shoe, identifying where the reference, first, second, and third slopes are.



EX2008 ¶¶279-280.

As shown in the figure above, lines along the inner and outer edges of the outsole, where the first and third slopes are determined, are parallel to the bottom of the shoe. And a line drawn along the front of the shoe, where the second slope is determined, is parallel to the bottom of the shoe. EX2008 ¶¶281-285. Thus, every one of the first, second, and third slopes is zero. Each is the same, not greater, than the reference slope. Accordingly, Rubin fails to disclose a first, second, or third slope greater than the reference slope.

Like in Kim, nothing changes about the actual shoe of Rubin when it is on soft ground, as depicted in Figure 4, with respect to the claims. EX2008 ¶286. This is shown in the block diagram below:



EX2008 ¶286. Because the shoes are being worn on soft ground in Figure 4, the longer spikes on the inside edge sink further into the ground, with the result that the shoes are at an angle relative to the ground. *Id.*, ¶¶287-289. However, the entire foot platform of Rubin remains parallel to the bottom of the cleats—which is the correct way to measure the slopes in the claims. *Id.*

Even Petitioner’s expert agrees that if the slopes are measured to include the entire shoe and not to exclude the height of the cleats, there is no second slope. As he testified at his deposition, “from the top of the foot platform to the bottom surface of the cleats,” “there is no second slope greater than the reference slope.” EX2010, 109:13-110:15. He further explained that “relative to the bottom of the cleats, the surface of the foot and the bottom of the cleats would be relatively parallel. . . . [I]n that instance . . . [t]here would be no second slope. . . . You’re correct.” *Id.*, 110:17-18.

Finally, even if the slopes of the claims are measured relative to the *ground* and not the bottom surface of the shoes (counterfactually), Rubin still fails to

disclose the required slopes. As shown above, with respect to the ground, the reference slope is no longer substantially parallel when the cleats sink into the ground. EX2008 ¶¶291-292. There is no first slope or third slope greater than the reference slope in this arrangement because the heel and toe section sink into the ground equally and remain parallel to the ground (unlike the reference slope). *Id.* And the second slope remains parallel to the reference slope. *Id.*.

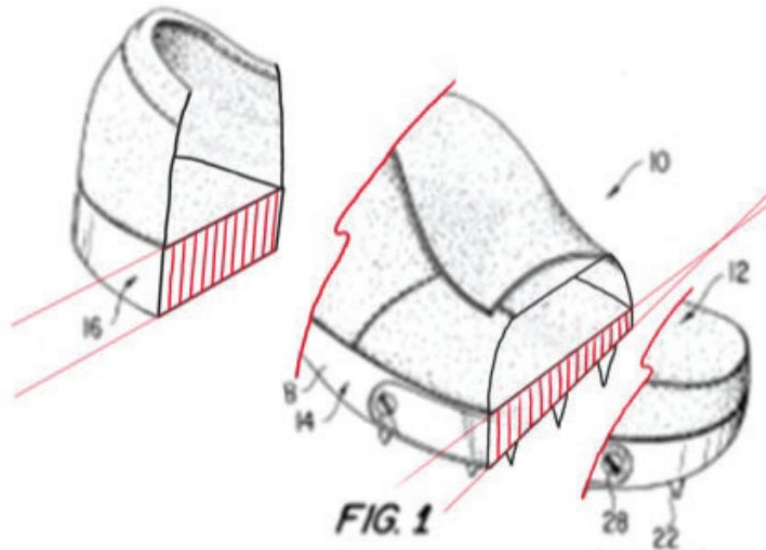
2. Petitioner Has Not Proven Claims 1 or 5 are Otherwise Obvious Based on Rubin

Petitioner's analysis relies solely on obviousness, but never actually identifies any modifications or changes to Rubin that a POSITA would make to render the claims obvious. Therefore, Petitioner should be held to the arguments in the petition and should not be permitted to argue in reply for new modifications to Rubin that it did not previously describe. Based on the actual arguments presented, the analysis above shows that Rubin does not render the claims obvious.

However, Petitioner's expert appears to rely in places on a "what if" embodiment based on Rubin that modifies its consistent disclosure. *See* EX1002 ¶¶212-214. To the extent Petitioner is allowed to make new arguments based on this disclosure, those arguments should still fail.

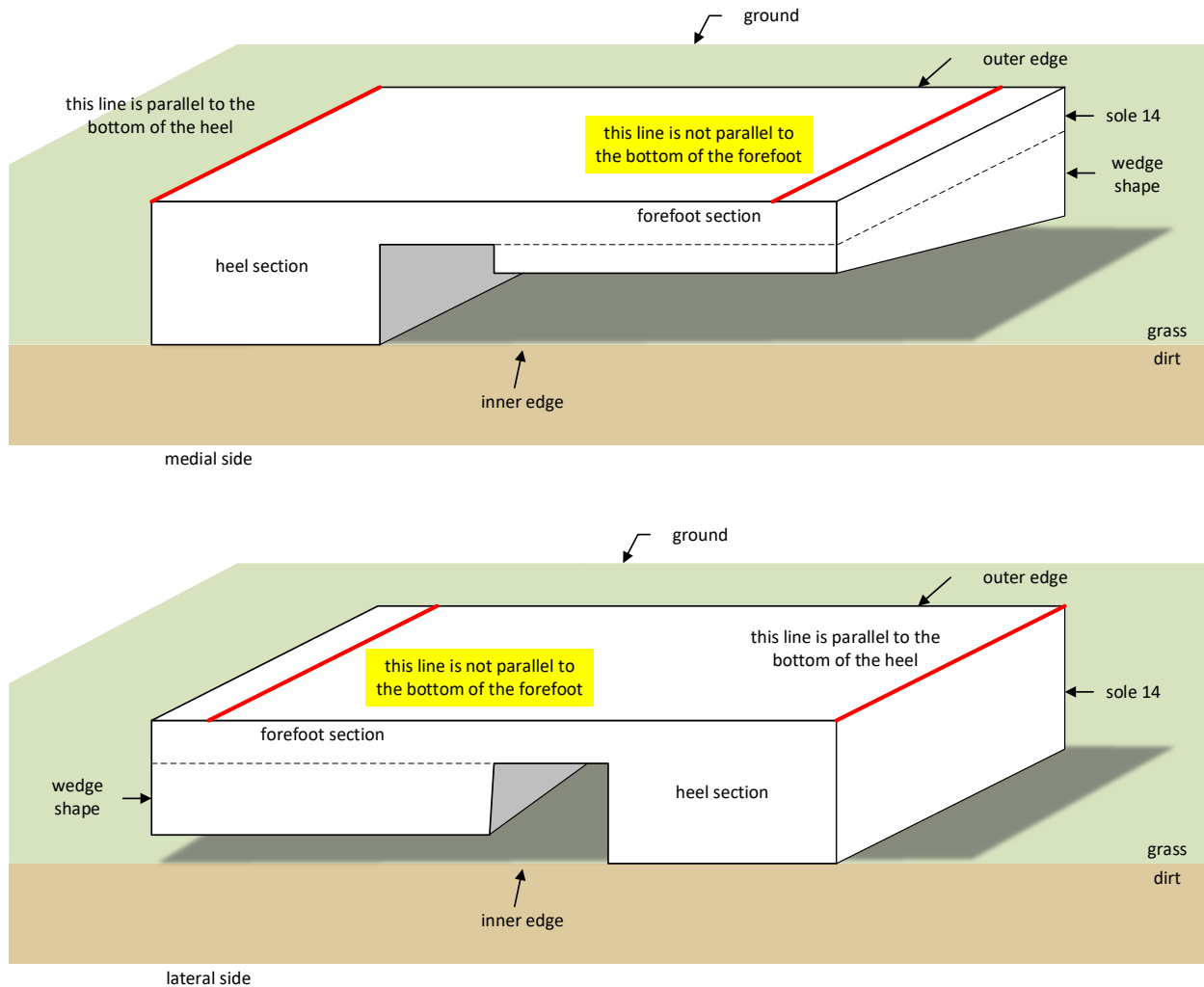
First, Petitioner's expert relied on figures from Rubin that showed cleats on the bottom of the shoe, but excluded those cleats from his analysis when measuring the slopes and heights required by the claims. Indeed, Mr. Delgatty admitted in his

deposition that he excluded the height of the cleats when drawing all the annotations he added to Rubin. EX2010, 111:5-14, 112:1-3. This can be seen in Figure 1 that Mr. Delgatty annotated:

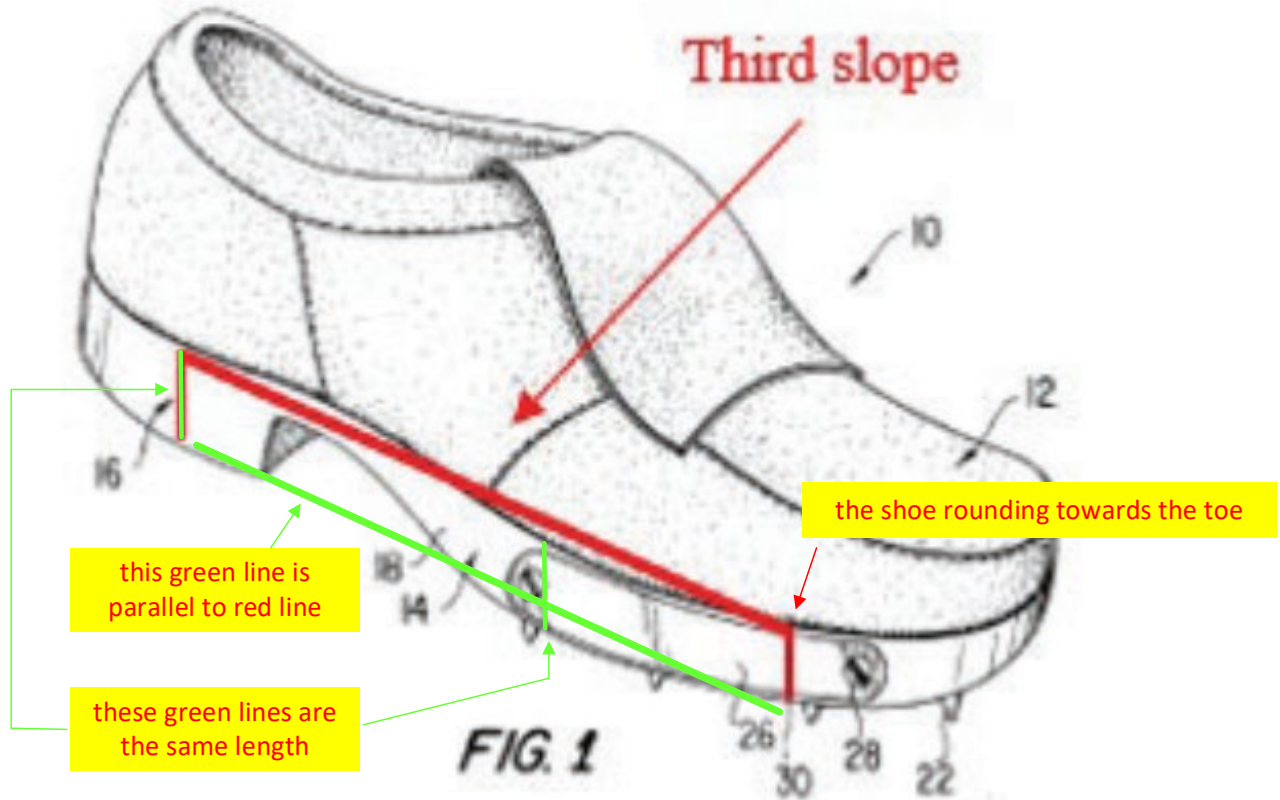


EX1002, 67.

As Mr. Markison explains, however, modifying Rubin's shoes to exclude the cleats would result in "what if" embodiments that would not make any sense and result in illogical shoes. EX2008 ¶¶293-298. Block diagrams illustrating these "what if" embodiments are shown below:



EX2008 ¶305. Because these embodiments lack a bottom surface parallel to the reference slope, they cannot meet the requirements of claims 1 or 5. EX2008 ¶¶299-311. Finally, even taking Mr. Delgatty's annotated figures at face value, they still fail to show a third slope. As shown below, the "third slope" annotated by Mr. Delgatty is parallel to the bottom of the sole of the shoe even without the cleats.



EX2008 ¶¶150-155; 312-215. Thus, even if it is permitted to rely on various modifications to Rubin suggested by its expert, Petitioner cannot show claims 1 or 5 are obvious.

3. Claims 2-4 and 6-8 are Patentable over Rubin.

Because independent claims 1 and 5 are patentable over Rubin, the more specific dependent claims are also patentable for the same reasons. EX2008 ¶316.

D. Ground 4: Kim Is Not Relied on to Solve the Problems in Dufour for Independent Claims 1 and 5.

Petitioner relies on Kim for its disclosure of an insole. *See* Pet., 52. Specifically, Petitioner's proposed combination incorporates the insole in Kim into

the golf shoes in Dufour for dependent claims 2, 4, and 7. *Id.*, 53-56. Petitioner does not propose modifying Dufour in any other way that to incorporate Kim's insole. Thus, Petitioner does not argue that anything in Dufour would be changed to meet the requirements of independent claims 1 or 5. Because Dufour fails to anticipate or render obvious the independent claims, as discussed above (§ VIII.B), Ground 4 fails for the same reasons as Ground 2. EX2008 ¶317.

E. Ground 5: Kim Is Not Relied on to Solve the Problems in Rubin for Independent Claims 1 and 5

Petitioner relies on Kim for its disclosure of an insole. *See* Pet., 56. Specifically, Petitioner's proposed combination incorporates the insole in Kim into the golf shoes in Rubin for dependent claims 2, 4, and 7. *Id.*, 56-58. Petitioner does not propose modifying Rubin in any other way that to incorporate Kim's insole. Thus, Petitioner does not argue that anything in Rubin would be changed to meet the requirements of independent claims 1 or 5. Because Rubin fails to anticipate or render obvious the independent claims, as discussed above (§ VIII.C), Ground 5 fails for the same reasons as Ground 3. EX2008 ¶317.

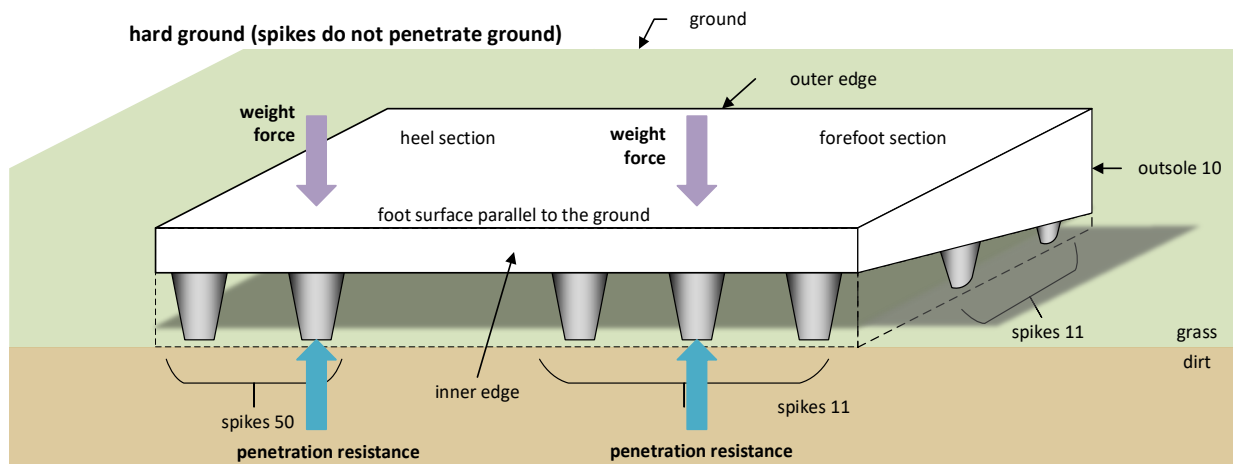
F. Grounds 1-5 All Fail to Render Claims 5-8 Obvious Under the Correct Construction of "Athletic Positioning"

All of the arguments above assume Petitioner's constructions are correct and there is no need to construe any claim terms. However, independent claim 5 requires an "athletic positioning sole section." Under the correct construction, this requires a

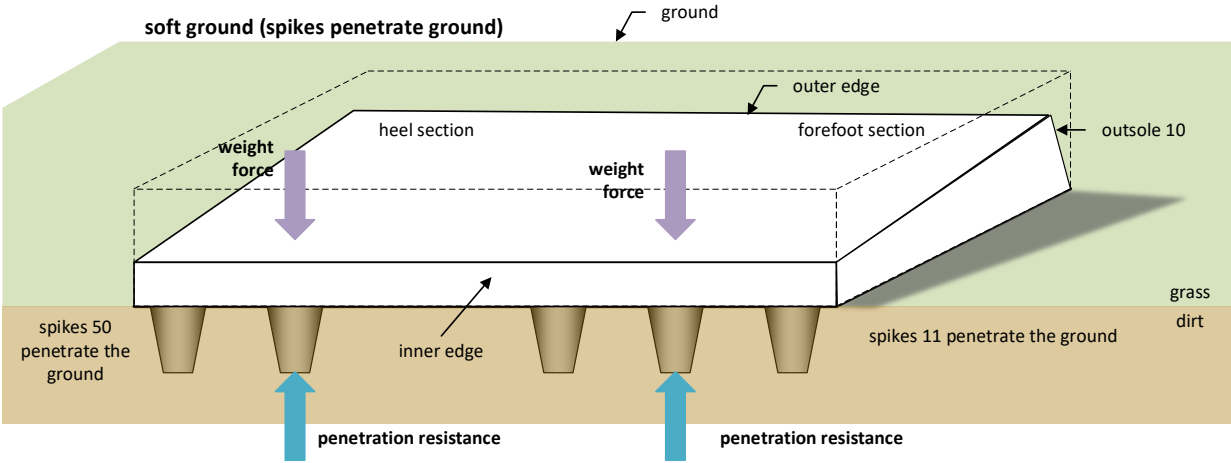
heel section higher than the toe section and the outside edge of the toe section higher than the inside edge of the toe section. *Supra* ¶ VI.B. Applying this construction, Petitioner fails to prove that any of the three prior art references render claims 5-8 obvious. EX2008 ¶¶318-319.

Neither Kim nor Rubin disclose or render obvious an athletic positioning sole section. Instead, Kim and Rubin disclose an entire sole section at a single height parallel to the bottom surface of the shoes, which is true regardless of a hard or soft surface. EX2008 ¶¶110, 112, 148, 149.

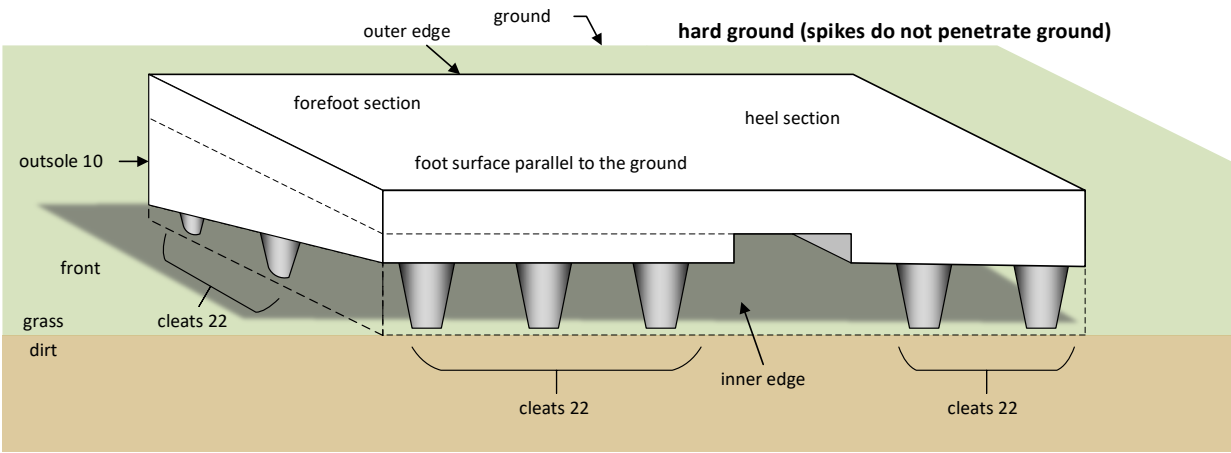
Kim (hard surface)



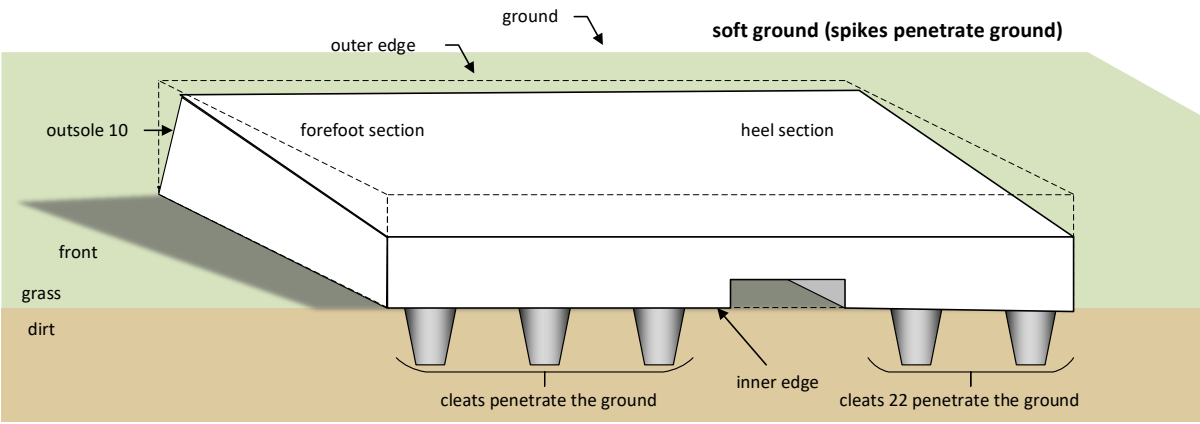
Kim (soft surface)



Rubin (hard surface)

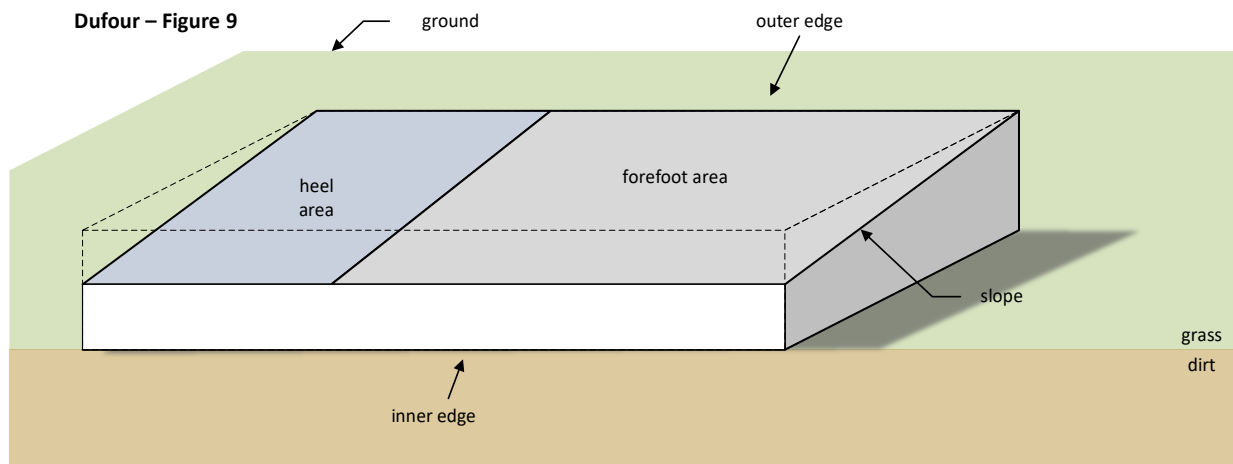


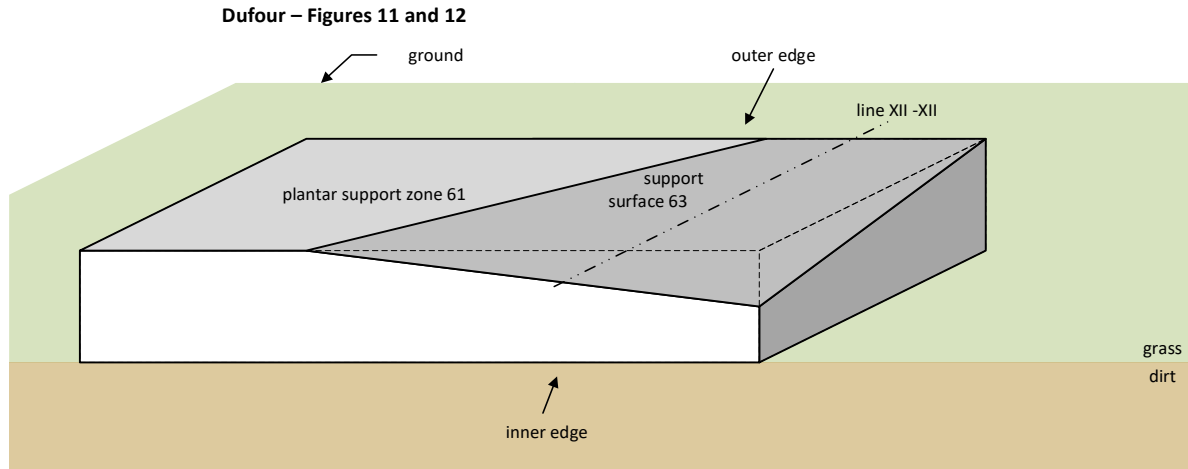
Rubin (soft surface)



Even on soft surfaces if the slopes are measured relative to the ground and not the bottom of the shoe, Kim and Rubin's inner edge and outer edge remain at the same height at the heel section and the toe section, and therefore do not disclose the three dimensional shape required by the term "athletic positioning sole section." *Id.* For this reason, Grounds 1, 3, and 5 fail.

Dufour also fails to disclose an "athletic positioning sole section." Neither the Figure 8-10 or Figure 11-12 embodiment discloses the required heel, outer, and inner toe height and slopes. Instead, under all circumstances, the heel height is the same as the outer toe height. EX2008 ¶¶128, 134.





For this reason, Grounds 2 and 4 fail.

VIII. SECONDARY CONSIDERATIONS OF NONOBVIOUSNESS

For the reasons given above, the challenged claims of the '786 Patent are not obvious over the prior art on which Petitioner relies. However, in addition to those arguments, secondary considerations of nonobvious, discussed further below, also demonstrate that the challenged claims are not obvious.

The objective evidence of nonobviousness includes, among other factors, long felt but unsolved need, skepticism by others, industry praise, and copying. *See, e.g., In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998). Secondary considerations may be accorded substantial weight when there is a “nexus between the evidence and the merits of the claimed invention.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (citations omitted). “A patent owner is entitled to a presumption of nexus when it shows that the asserted objective evidence is tied to a specific product that embodies the claimed features, and is coextensive with them.” *Volvo Penta of*

the Ams., LLC v. Brunswick Corp., 81 F.4th 1202, 1210 (Fed. Cir. 2023) (internal quotation marks and citation omitted).

As discussed below, the requisite nexus exists here, owing to the legally and factually sufficient connection between the evidence of non-obviousness and the patented invention. *See Demaco Corp. v. F. Von Langsdorff Licesning Ltd.*, 851 F.2d 1378, 1392 (Fed. Cir. 1988). In particular, Mr. Markison has provided unrebutted evidence that Athalonz's products practice and are coextensive with the claims of the '786 patent, entitling it to a presumption of nexus. EX2008 ¶322; EX2014.

A. Petitioner's Expert Failed to Consider Any Evidence of Secondary Considerations.

Secondary considerations of nonobviousness must be considered in every case where present. *Apple Inc. v. Samsung Elecs. Co., Ltd.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted). This requirement arises from the fact that every factor "helps inform the ultimate obviousness determination." *Id.* (citations omitted). Secondary considerations may be the most probative evidence of nonobviousness. *Crocs, Inc. v. ITC*, 598 F.3d 1294, 1310 (Fed. Cir. 2010).

Mr. Delgatty did not perform any analysis of any of the secondary considerations. In fact, at his deposition, Mr. Delgatty admitted that his declaration acknowledged that secondary considerations were "something you're supposed to consider for obviousness." EX2010, 117:14-118:2. He even read descriptions of several of the factors which were *included in his declaration*. *Id.*, 120:17-121:21.

Yet, when asked whether he applied any secondary considerations or even analyze whether any evidence of secondary considerations existed, he replied, “I didn’t apply any.” *Id.*, 121:17-122:1. Mr. Delgatty’s stunted obviousness analysis is infirm for his failure to perform any assessment of the secondary considerations of nonobviousness.

As discussed below, numerous secondary considerations weigh heavily in favor of a finding that the invention embodied in the ’786 Patent was *not* obvious.

B. Long-Felt, Unmet Need

The age of the references on which Petitioner relies demonstrates that there was a long-felt need for an athletic shoe that put an athlete in a better athletic position. Rubin was filed in October 1972 (39 years prior to the priority date of the ’786 Patent); Dufour was filed in May 1987 (24 years prior to the priority date of the ’786 Patent); and Kim was filed in July 2003 (8 years prior to the priority date of the ’786 Patent). EX2008 ¶323.

Moreover, golf shoes that incorporate the concepts of Rubin, Dufour, and Kim are not prevalent in the market, if they even exist at all. EX2008 ¶324. Petitioner’s expert, Mr. Delgatty, admitted in his deposition that he was unaware of any products in the market that embody the concepts of any of the prior art asserted against these claims. EX2010, 123:8-124:6. This suggests that the concepts disclosed in these

patents have not been accepted as solving the problem of the need for putting the golfer into a better athletic position.

The combination of the recognition of the problem nearly four decades prior to the filing of the '786 Patent and the lack of solutions in the market in the intervening time period indicates that there was a long-felt and unmet until the '786 Patent was filed.

C. Skepticism by Others

Athalonz introduced a baseball shoe in 2015 that embodied the invention of the '786 Patent, and was met with limited success. EX2008 ¶325. At that time, the industry did not believe that the shoes would improve athletic positioning. This lack of success was largely attributable to the fact that, until that time, achieving a better athletic position was viewed primarily as a problem for the athlete to solve with their body. *Id.*

D. Industry Praise and Unexpected Results

In addition, in 2018, Athalonz released the EnVe golf shoe, which embodied the invention of the '786 Patent. EX2008 ¶322. The Athalonz golf shoes were praised by people in the industry, including by Bernhard Langer and professional World Long Drive (WLD) athletes. EX2013.

For example, Mitch McDowell, who was a teaching pro and WLD athlete, took a prototype of the EnVe golf shoes, which embodied the '786 Patent's

invention, to a competition the summer of 2018. Another golfer, Ryan Steenberg, who was at the event, asked Mr. McDowell if he could try the Athalonz golf shoes, and Mr. McDowell agreed to let him try them. At the time, Mr. Steenberg had been competing in WLD for 8 years, was ranked number 6 in the world, but had never won an event. Mr. Steenberg got his first WLD win while wearing the Athalonz shoes. Mr. Steenberg won the next event, as well, again while wearing the Athalonz shoes. When other players asked him what he had changed, he responded that it was his shoes. *See* EX2008 ¶¶327-330.

Initially, the other WLD athletes did not believe Mr. Steenberg's shoes could make such a difference. However, one by one, the other WLD players began wearing Athalonz golf shoes. By the middle of the 2019 WLD season, approximately half of all WLD athletes were wearing Athalonz golf shoes that embodied the invention of the '786 Patent. In addition, a majority of the top ten men and women were wearing Athalonz golf shoes, including the men's and women's 2019 WLD champions. *Id.* ¶329.

In 2020, after more than 40 years wearing Adidas golf shoes, Bernhard Langer switched to Athalonz golf shoes, which embodied the invention of the '786 Patent. Mr. Langer made the switch to Athalonz golf shoes because he hit the ball better in them than when he wore other golf shoes. He has repeatedly touted the benefits of

the athletic positioning created for him personally by the Athalonz shoe embodying the invention of the '786 Patent. EX2008 ¶331; *see also* EX2013.

E. Copying

There is substantial evidence that Under Armour, the Petitioner here, copied Athalonz's patented technology claimed in the '786 patent. EX2008 ¶333. In August 2013, Athalonz (then known as Ad-Mark Athletic Ventures) met with personnel from Under Armour and gave a detailed presentation about the company, its products, and its patents. *See* EX2012; EX2008 ¶334. The presentation included detailed figures straight from the patents, and described in detail why the concept of "athletic positioning" claimed in the '786 patent was important for improving athletic performance. EX2008 ¶334. Indeed, Athalonz presented specific concepts and figures that were part of the patent applications that became the '786 patent, including its figures disclosing athletic positioning:

Creating A Solution

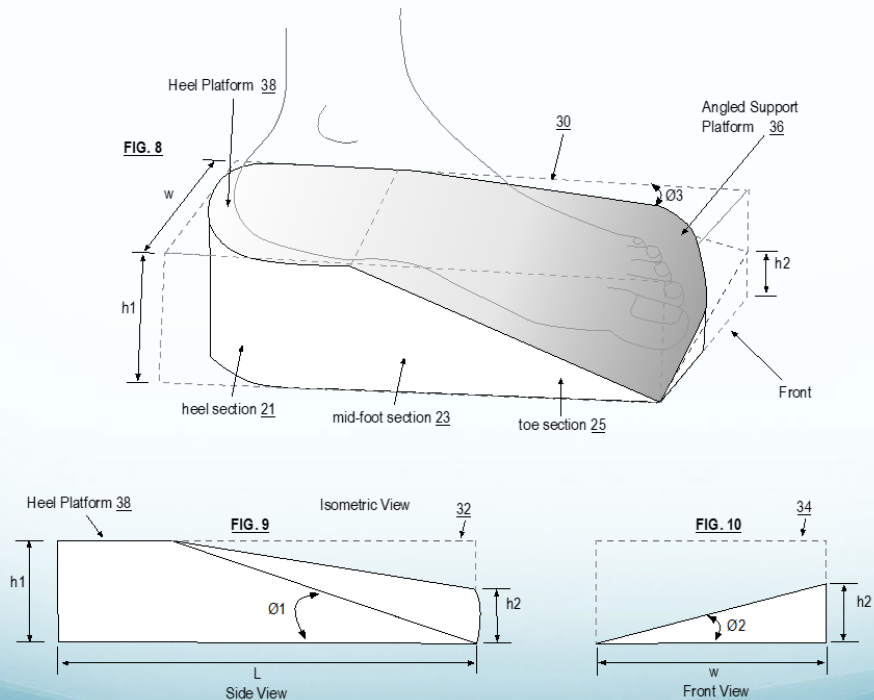
- We created a sole and/or an insole that provides:
 - a linear heel section that is higher than the toe section (i.e., downward slope from heel to toe); and
 - The inner edge of the ball of the foot and/or big toe portion of the toe section is lower than the outer edge of the toe section (i.e., inward slope from outside edge of front foot area to inside edge of front foot area);
- **Our Athletic Positioning Concept gives the athlete the optimal foot positioning for an optimal Athletic Start;**

AdMark Athletic Ventures Confidential Information

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EX2012, 13.

Athletic Positioning with Heel Platform



AdMark Athletic Ventures Confidential Information

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Id., 54. And Athalonz offered Under Armour the opportunity to acquire or license Athalonz's technology. *Id.*, 47-49; EX2008 ¶337.

Under Armour continued to engage with Athalonz after the presentation, including receiving physical sample products of the Athalonz shoes in 2014 to test internally before deciding whether to license or partner with Athalonz on its technology. *Id.* ¶338. However, Under Armour eventually stopped responding to Athalonz, and instead proceeded to release infringing products that copied the athletic positioning claimed in the '786 patent. *Id.*, ¶339; EX1009. Under Armour's

copying is strong evidence of secondary considerations of nonobviousness. EX2008 ¶340.

F. Conclusion

The above secondary considerations are further evidence that the challenged claims of the '786 patent are not obvious over the prior art cited by Petitioner.

IX. CONCLUSION

For the reasons stated above, the Board should find that Petitioner has failed to prove that any challenged claim of the '786 Patent is unpatentable.

Dated: January 3, 2025

Respectfully submitted,

/Michael Matulewicz-Crowley/
Michael Matulewicz-Crowley
Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that Patent Owner's Preliminary Response (the "POPR") consists of 12,985 words, excluding the table of contents, certificate of service, this certificate of compliance, or table of exhibits. The POPR complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare this paper (Microsoft Word).

Dated: January 3, 2025

/Michael Matulewicz-Crowley/
Michael Matulewicz-Crowley
Counsel for Patent Owner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6, the undersigned certifies that on January 3, 2025
a copy of the foregoing document was served by email upon the following:

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