

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNDER ARMOUR, INC.
Petitioner

v.

ATHALONZ, LLC
Patent Owner

Case No. TBD
Patent No. 11,510,456

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,510,456**

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Statutes

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Other Authorities

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PETITIONER’S EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No 11,150,456 (“the ‘456 patent”)
1002	Declaration of Grant Delgatty
1003	Curriculum Vitae of Grant Delgatty
1004	Prosecution History Excerpts of U.S. Patent Application No. 17/327,054
1005	U.S. Patent No. 6,158,151 (“Won”)
1006	U.S. Patent Publication No. 2007/0107258 (“Umezawa”)
1007	U.S. Patent No. 7,464,428 (“Norton”)
1008	U.S. Patent No. 4,642,911 (“Talarico ‘911”)
1009	U.S. Patent No. 4,615,126 (“Mathews”)
1010	U.S. Patent No. 5,025,573 (“Giese”)
1011	Prosecution History Excerpts of U.S. Patent Application No. 16/555,171
1012	Excerpts from Athalonz’s Infringement Contentions, served in <i>Athalonz, LLC v. Under Armour</i> , Case No. 2:23-cv-00193 (E.D. Tex.).
1013	1977 Nike Boston Running Shoe

1014	FootJoy 51409
1015	FootJoy 1970 Product Catalog
1016	U.S. Patent No. D275146
1017	U.S. Patent No. D310294
1018	1971 Nike Cortez
1019	Merriam-Webster's Collegiate Dictionary Definition of "Gradient"
1020	RESERVED
1021	CAD Image of Heel Platform of UA HOVR Drive

CLAIM LISTING

1. An athletic shoe comprises:
 - an upper section; and
 - a sole section coupled to the upper section, wherein the sole section includes:
 - a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and
 - a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second level of compression is greater than the first level of compression.
2. The athletic shoe of claim 1, wherein the forefoot section comprises:
 - a mid-foot section; and
 - a toe section proximal to the mid-foot section.
3. The athletic shoe of claim 1, wherein the second material comprises:
 - a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.
4. The athletic shoe of claim 3, wherein the resilient material comprises one or more of:
 - a rubber, a gel, a foam, a synthetic material.
5. The athletic shoe of claim 1, wherein the second material comprises:
 - a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.
7. The athletic shoe of claim 1, wherein the heel platform further comprises:
 - the first material having a first compression factor.
9. The athletic shoe of claim 1, wherein the sole section comprises one or more of:
 - an insole;

a mid-sole; and
an out-sole.

10. An athletic shoe comprises:
 - an upper section; and
 - a sole section coupled to the upper section, wherein the sole section includes:
 - a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and
 - a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed to have a first level of compression proximal to the outer edge of the shoe and a second level of compression proximal to an inner edge of the shoe, wherein the second level of compression is greater than the first level of compression.
11. The athletic shoe of claim 10, wherein the forefoot section comprises:
 - a mid-foot section; and
 - a toe section proximal to the mid-foot section.
12. The athletic shoe of claim 10, wherein the forefoot platform comprises:
 - a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.
13. The athletic shoe of claim 12, wherein the resilient material comprises one or more of:
 - a rubber, a gel, a foam, a synthetic material.
14. The athletic shoe of claim 10, wherein the forefoot section comprises:
 - a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.
15. The athletic shoe of claim 10, wherein the heel platform further comprises:
 - the first material having a first compression factor.
17. The athletic shoe of claim 10, wherein the sole section comprises one or more of:
 - an insole;
 - a mid-sole; and
 - an out-sole.

MANDATORY NOTICES

A. Real Party-In-Interest (37 C.F.R. § 42.8 (b)(1))

Petitioner certifies that Under Armour, Inc. is the real party-in-interest.

B. Related Matters (37 C.F.R. § (b)(2))

The '456 patent is currently involved in the following proceeding: *Athalonz, LLC v. Under Armour.*, Case No. 2:23-cv-00193 (E.D. Tex.).

C. Counsel and Service Information (37 C.F.R. § 42.8(b)(3) and (4))

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Service information for lead and backup counsel is provided in the designation of lead and backup counsel, above. Petitioner consents to electronic service by email at the email addresses provided above.

D. Payment of Fees Under 37 C.F.R. §§ 42.15(a) & 42.103

The required fees are submitted herewith in accordance with 37 C.F.R. §§ 42.103(a) and 42.15(a). If any additional fees are due during this proceeding, the Office is authorized to charge such fees to Deposit Account No. 22-0261. Any overpayment or refund of fees may also be deposited in this Deposit Account.

Pursuant to 35 U.S.C. §§ 311-19 and 37 C.F.R. § 42.1 *et seq.*, Under Armour, Inc. (“Under Armour”) requests *inter partes* review (“IPR”) of claims 1-5, 7, 9-15 and 17 of U.S. Patent No 11,510,456 (“the ‘456 patent”) (Ex. 1001) pursuant to 35 U.S.C. §§ 311-19 and 37 C.F.R. § 42.1 *et seq.* The ‘456 patent is subject to pre-AIA 35 U.S.C. §§ 102 and 103.

I. INTRODUCTION

The ‘456 patent relates to athletic positioning footwear. The challenged claims of the ‘456 patent all recite an athletic shoe that includes an upper section and a sole section, wherein the sole section includes: (1) a heel platform having a height that is substantially uniform from its inner edge to its outer edge; and (2) a forefoot platform that is more compressible near its inner edge than its outer edge. Shoes having these characteristics, individually and collectively, were well-known in the art before the filing of the ‘456 patent. As shown below, U.S. Patent No. 6,158,151 (“Won”), U.S. Publication No. 2007/0107258 (“Umezawa”), U.S. Patent No. 7,464,428 (“Norton”), and U.S. Patent No. 4,642,911 (“Talarico ‘911), each of which published more than a year before the filing date of the ‘456 patent, teach or render obvious all of the claimed limitations as they are recited in the challenged claims.

II. GROUNDS FOR STANDING UNDER 37 C.F.R. § 42.104(a)

Petitioner certifies that the ‘456 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR. This petition is being filed within one year of Petitioner being served with a complaint alleging infringement of the ‘456 patent.

III. IDENTIFICATION OF CHALLENGES UNDER 37 C.F.R. § 42.104(b) AND RELIEF REQUESTED

A. Grounds for the Challenged Claims

Petitioner requests (i) review of claims 1-5, 7, 9-15 and 17 of the ‘456 patent on the grounds set forth below and (ii) that those claims be found unpatentable.

Ground	Claim(s)	Basis for Unpatentability
1	10, 11, 15, 17	Obvious Based on Won
2	1-5, 7, 9, 12-14	Obvious Over Won in View of Norton
3	1-5, 7, 9, 12-14	Obvious Over Won in View of Talarico ‘911
4	1-5, 7, 9-15, 17	Obvious Based on Umezawa
5	1-5, 7, 9-15, 17	Obvious Based on Norton
6	1-5, 7, 9-15, 17	Obvious Based on Talarico ‘911

IV. SUMMARY OF THE ‘456 PATENT

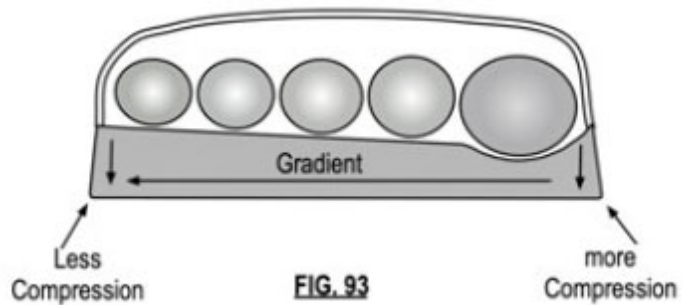
A. Background of the Technology

The ‘456 patent generally relates to “athletic positioning footwear.” Ex. 1001 (the ‘456 patent) at 1:43-44. The ‘456 patent acknowledges that prior art athletic footwear include an upper, a sole, an insole, and some include cleats or spikes. *Id.* at 1:54-65; Ex. 1002, ¶ 21. Prior art athletic shoes were also known to have a “sole and/or padded insole [that] provide a relatively flat platform for the foot” or alternatively, provide a “heel portion of the shoe [that is] higher than the toe portion of the shoe from a side perspective.” *Id.* 1:66-2:4, Figs. 1-2; Ex. 1002, ¶ 21. But allegedly, unlike the prior art, the footwear in the ‘456 patent includes a forefoot platform that is constructed to be more compressible near its inner edge than its outer edge. *Id.*, 27:47-54; 33:60-34:30; Figs. 93-94, 112-113; Ex. 1002, ¶ 22. However, footwear having a forefoot platform that is more compressible near its inner edge than its outer edge was well-known before the filing date of the ‘456 patent, as shown in the references described below. Ex. 1002, ¶ 23.

B. The Claimed Subject Matter

The ‘456 patent contains seventeen claims, where claims 1 and 10 are independent. This Petition challenges independent claims 1 and 10, and claims 2-5, 7, 9, 11-15 and 17 which depend therefrom.

Claim 1 recites an athletic shoe comprising an upper section and a sole section, wherein the sole section includes a heel platform that is substantially uniform in height from its inner edge to its outer edge, and a forefoot platform juxtaposed to the heel platform constructed of a material having a “gradient compression factor” that allows the inner edge of the forefoot platform to compress more than the outer



edge under the weight of an athlete, as depicted in Fig. 93. The ‘456 patent explains that the sole is “comprised of one or more materials that provides a more compressible area towards the big toe/ball of foot area and increasingly less compressible away from the big toe/ball of foot area to facilitate an athletic position.” *Id.*, 27:50-54. An additional embodiment of the ‘456 patent that incorporates gradient compression is shown in Figs. 112-113, and described in 34:1-30.

Unlike claim 1, claim 10 does not require a “gradient compression factor,” and instead only requires the forefoot platform to be more compressible proximal to its inner edge than its outer edge.

Dependent claims 2-5, 7, 9, 11-15 and 17 all relate to aspects of the shoe, its components or materials recited in the independent claims, including the addition of

a mid-foot section and a toe section, and specifying the type of material used in the various components.

C. Prosecution History

U.S. Patent Application No. 17/327,054, which issued as the ‘456 patent, claims the benefit of U.S. Provisional Patent Application No. 60/450,485, filed March 8, 2011 via a chain of continuation applications.

In the initial Office Action dated August 15, 2022, the Examiner issued a non-statutory double patenting rejection over U.S. Patent No. 11,375,768 (“the ‘768 patent”). Ex. 1004, pp. 42-45. In Response, the Applicant filed a Terminal Disclaimer (*id.*, pp. 30-36), and the Examiner subsequently issued a Notice of Allowance allowing all claims. *Id.*, pp. 12-16. No substantive prior art rejections were ever made during prosecution.

V. PRIOR ART

A. Effective Prior Art Dates

U.S. Patent No. 6,158,151 (“Won,” Ex. 1005) issued December 12, 2000. U.S. Patent Publication No. 2007/0107258 (“Umezawa,” Ex. 1006) was published on May 17, 2007. U.S. Patent No. 7,464,428 (“Norton,” Ex. 1007) issued December 16, 2008. U.S. Patent No. 4,642,911 (“Talarico ‘911,” Ex. 1008) issued February 17, 1987. All constitute prior art to the ‘456 patent under pre-AIA 35 U.S.C. § 102(b).

B. Overview of Won

Won discloses golf shoes designed to help a golfer “maintain[] balance [] in order that a golfer can swing naturally.” Ex. 1005, 1:30-31; Ex. 1002, ¶ 37. Won explains that the improved golf shoes allow “all golfers from beginners to professionals [to] have proper and comfortable address stance,” which enhances accuracy and increase the flying distance of the ball. *Id.*, 2:63-67.

In one embodiment, Won discloses golf shoes having a sole “formed such that the inside surface and outside surface separated by a central longitudinal axis of the sole (or mid sole) are different from each other,” as shown in Figure 5.

Id., 4:46-50.

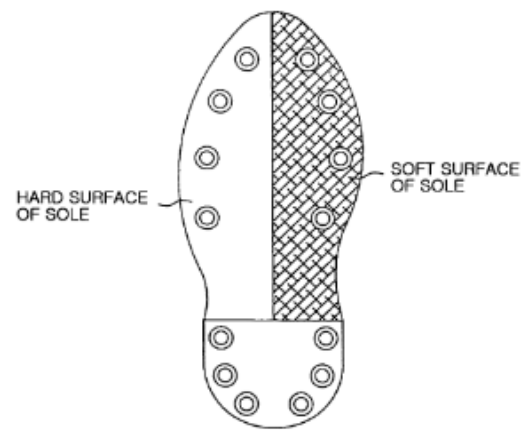


FIG. 5

In this embodiment, “the inside surface is soft surfaced and outside surface is hard surfaced” so “[w]hen a golfer puts his both feet together to take a stance for swing, the spikes fitted on the part of the soft surface are pressed down because they are fixed on soft surface. But spikes formed on the hard surface remain [in] the same position so that the sole is tilted toward the soft surface. Therefore, the pair of shoes facing each other can be easily tilted to the insides of the shoes.” *Id.*, 4:50-58. Won explains that this arrangement “facilitates bending inward the player’s legs to attain stability at address and swing.” *Id.*, 6:28-36; Ex. 1002 ¶ 38.

Won also discloses golf shoe designs that include a heel platform with a substantially uniform height. *See, e.g.*, Figs. 2, 3, 6, 7; 1:42-50; 2:51-53; Ex. 1002, ¶ 39.

C. Overview of Umezawa

Umezawa discloses shoes suitable for athletic activities “such as golf, tennis, squash, field hockey, basketball, aerobic activity or the like.” Ex. 1006, ¶ 3; Ex. 1002, ¶ 40.

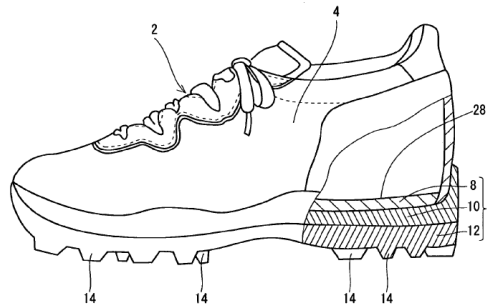


Fig. 1

Umezawa explains that in golf, “[d]uring the swing, the golf player kicks the ground while applying his or her own body weight to the inside of the kicking foot. The golf player receives his or her own body weight mainly on the inside of the pivoting foot. At this time, force is transferred to the ground via the shoe.” Ex. 1006, ¶ 8. Umezawa notes it would be beneficial to “provide a shoe in which a wearer’s body weight is easily applied to the inside of a foot.” *Id.*, ¶ 10; Ex. 1002, ¶ 41.

To accomplish this goal, Umezawa discloses shoes having a midsole with a forefoot platform made up of “a low elastic part 20 and a high elastic part 22,” as shown in Figs. 2-3. Ex. 1006, ¶ 36; Ex. 1002, ¶ 42.

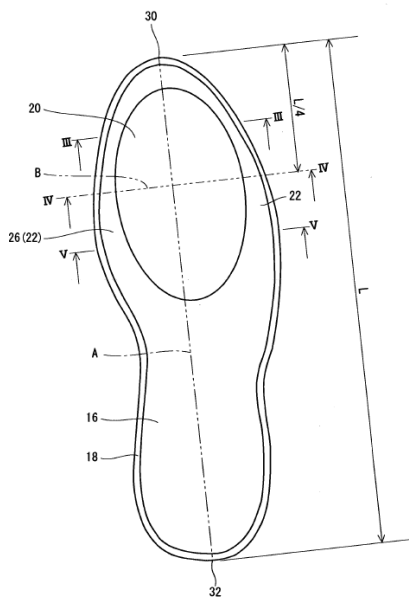


Fig. 2

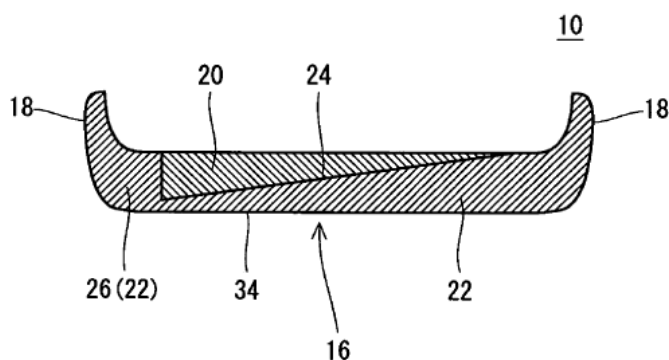


Fig. 3

Umezawa explains that “[t]he elastic modulus of the low elastic part 20 is lower than that of the high elastic part 22. When a compression load is applied to the midsole 10, the low elastic part 20 is more easily deformed than the high elastic part 22.” Ex. 1006, ¶ 36; Ex. 1002, ¶ 43.

Umezawa explains the benefits associated with this design:

When a golf player wears these golf shoes 2 and the body weight of the golf player is applied to the bottom part 6, this midsole 10 is compressed. Since the thickness of the low elastic part 20 is larger in the inside, the inside compression deformation is larger. Since the thickness of the high elastic part 22 is larger in the outside, outside compression deformation is smaller. In this midsole 10, applying the body weight generates unbalanced deformation. Deformation of the

midsole 10 displaces the position of an upper surface 28 (FIG. 1) of the insole 8. The downward displacement of the upper surface 28 in the inside is larger than the downward displacement of the upper surface 28 in the outside. The insole 8 inclines upward from the inside to the outside. The foot of a golf player also inclines upward from the inside to the outside. The body weight of a golf player is mainly applied to the inside. As mentioned above, when a golf player swings, the golf player kicks the ground with the inside of the kicking foot. Since the foot is inclined, the golf player easily transfers the force to the ground. This midsole 10 is suitable for the right foot of a right-handed golf player. These golf shoes 2 contribute to generation of high head speed. The large head speed generates a long flight distance.

Ex. 1006, ¶ 38; Ex. 1002, ¶ 44.

Umezawa explains that the material and structure of the remainder of the golf shoe, including that of the upper, the insole and the outsole, are the same as those of previously known golf shoes. Ex. 1006, ¶ 32. Umezawa also discloses that the novel midsole has a consistent thickness (except for the side wall 18) throughout, which includes the heel platform. *See id.*, ¶ 52, Figs. 2-4; Ex. 1002, ¶ 45.

D. Overview of Norton

Norton discloses sole elements for sports shoes that have a specific density distribution in a transverse direction. Ex. 1007, Abstract. Norton recognizes that injuries can arise during athletic activities such as running or jogging associated with pronation (rotation of the foot from the outside of the foot to the inside) or supination (rotation of the foot from the inside to the outside). *Id.*, 1:22-46. Norton also recognizes that prior art shoes existed that attempted to address these potential injuries by including dual density soles constructed of two different materials of

different densities that were separately formed and subsequently connected together. *Id.*, 1:47-2:50. But Norton recognized that the use of two materials has many drawbacks, such as problems associated with the interconnection of the materials, increased labor costs and more complex production requirements, so Norton invented a method of providing a variably density sole using only a single material. *Id.*, 2:51-67, 3:1-24.

Norton discloses a sole element with a lateral density variation made up of a single material that is “pressure forming into the desired density distribution,” as shown in Figs. 3B-4B. *Id.*, 3:14-15; 3:33-56; Ex. 1002, ¶ 46.

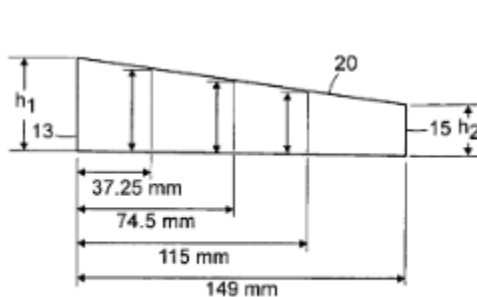


FIG. 3B

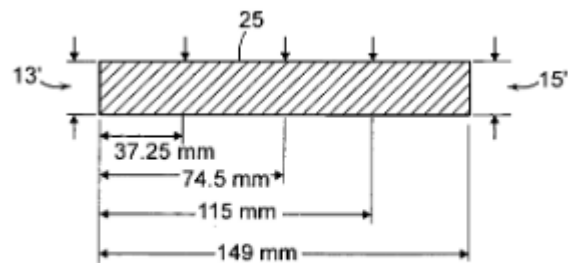


FIG. 4B

The locally varying hardness of the sole unit 25 can be explained by the surplus of material on the left side 13, which is compressed more than the material on the right side 15 during the final forming step in such a way that a continuously varying density distribution is obtained in the sole unit 25. The resulting density, in turn, influences the hardness and therefore the elasticity of the sole unit 25.

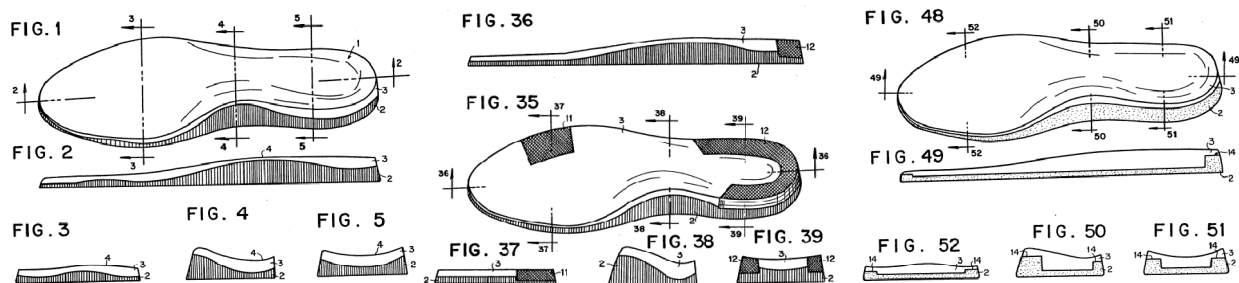
Ex. 1007, 8:12-18.

Norton also explains that the “[d]ensity can increase gradually from a lateral side of the sole element to a medial side of the sole element” or vice versa. *Id.*, 4:7-

13. The sole element has a consistent thickness throughout, including in the heel section. *Id.*, 7:39-43, Figs. 4A, 4B; Ex. 1002, ¶ 47.

Norton incorporates several prior art patents by reference, including U.S. Patent Nos. 4,642,911 (Ex. 1008, “Talarico ‘911”) described below; 4,615,126 (Ex. 1009, “Mathews”); and 5,025,573 (Ex. 1010, “Giese”). Ex. 1007, 1:47-38; Ex. 1002 ¶ 48.

Giese also discloses multi-density shoe soles. Ex. 1010, Abstract. Giese discloses several embodiments wherein the heel platform is substantially uniform in height from its inner edge to its outer edge. *See, e.g., Id.*, Figs. 1-5, 36-39, 48-51; 7:16-18; Ex. 1002, ¶ 49.



Giese also acknowledges that, “historically, shoe bottoms [] consisted primarily of flat surfaces on both their top and bottom.” Ex. 1010, 1:10-27. Ex. 1002, ¶ 50.

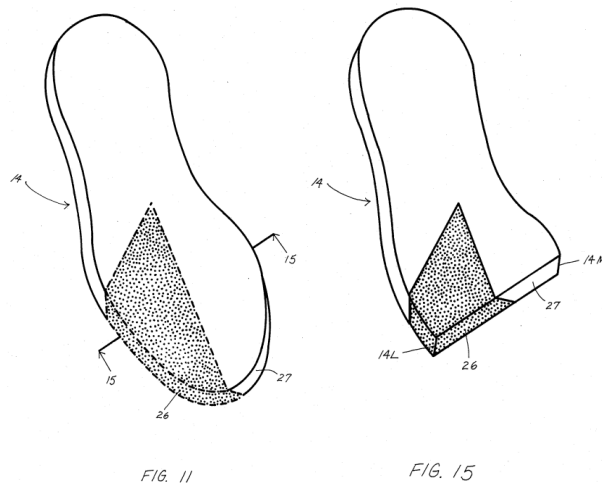
E. Overview of Talarico '911

Talarico '911 discloses a midsole for a shoe comprised of materials of different compressibility arranged across the width of the forefoot of a shoe. Ex. 1008, Abstract. For example, Talarico '911 explains:

The present invention is intended for any and all footwear wherein dual-density or dual-compressibility materials or combinations of different materials may be incorporated into either the midsole, outersole, or innersole construction of the footwear.

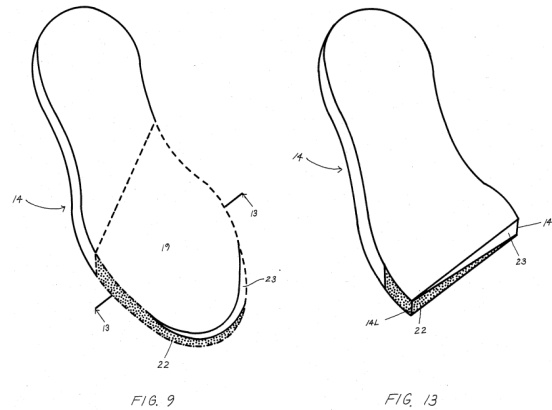
Id., 1:11-18; Ex. 1002, ¶ 51.

Talarico '911 discloses multiple embodiments in which a dual-density forefoot can be provided. For example, the two materials can be provided side-by-side, as shown in Figs. 11 and 15. *See also* Ex. 1008, 15:15-22. 20:1-13; Ex. 1002, ¶ 52.



Alternatively, a 45-degree split can be provided between the two materials, which allows for “a more even and gradual alteration of the weight-bearing gravitational forces as they are delivered and directed across the forefoot section of

the footwear during the midstance and propulsive phases of gait,” as depicted in Figs. 9 and 13. Ex. 1008, 12:41-47, *see also id.*, 11:42-55, 12:41-47; Ex. 1002, ¶ 53.



In both embodiments, “the material employed on the lateral half of the forefoot is denser than the material used on the medial half of the forefoot.” Ex. 1008, 11:64-68. Talarico ‘911 also explains that the midsole has a consistent thickness throughout (*id.*, 12:1-3) and that “the rearfoot portion is of constant thickness across the width thereof.” *Id.*, 21:22-23; Ex. 1002, ¶ 54.

Notably, Patent Owner did not refute that Talarico ‘911 teaches all elements of claims 1-5, 7 and 9 of the ‘456 patent during prosecution of the related ‘768 patent, wherein the pending claims had identical limitations. Ex. 1011, pp. 77-81, 210-11.

VI. CLAIM CONSTRUCTION UNDER 37 C.F.R. § 42.104(b)(3)

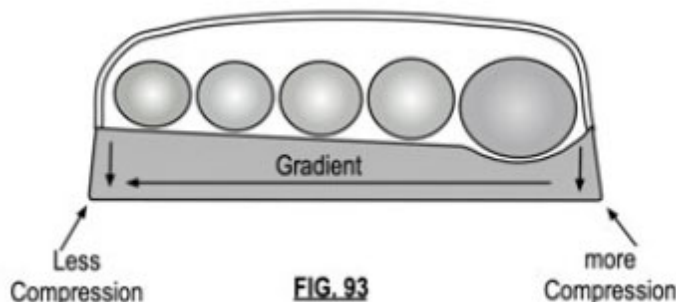
Under any interpretation of the claims, including the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (holding that words of a claim “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention), all of

the limitations of the challenged claims are met in the prior art as discussed below.

The following constructions are offered for purposes of clarity only.

A. “Gradient Compression Factor”

Independent claim 1 recites a forefoot platform constructed of a second material having a “gradient compression factor” that allows it to compress more near its inner edge than its outer edge when weight of the athlete is applied to the shoe. The ‘456 patent does not define “gradient compression factor,” but discusses its meaning with respect to Fig. 93:



FIGS. 93 and 94 illustrate a cross-sectional front view diagram and a cross-sectional side view diagram of another embodiment of an integrated athletic positioning sole and insole. The integrated sole 10 and insole 12 is comprised of one or more materials that provides a more compressible area towards the big toe/ball of foot area and ***increasingly less compressible*** away from the big toe/ball of foot area to facilitate an athletic position. ... For example, the integrated sole and insole may include a rigid material as an outsole (e.g., a sport specific bottom) to provide a base. On top of the base, the integrated sole and insole includes one or more varying compressible materials. For example, the next layer is a single resilient material (e.g., rubber, gel, foam, synthetic material, etc.) of varying density to provide a ***compressible gradient***. As another example, the next layer includes a plurality of materials, each having a shape to collectively provide the

athletic positioning shape. In addition, at least some of the materials have a different level of compressibility to facilitate the *compressible gradient*.

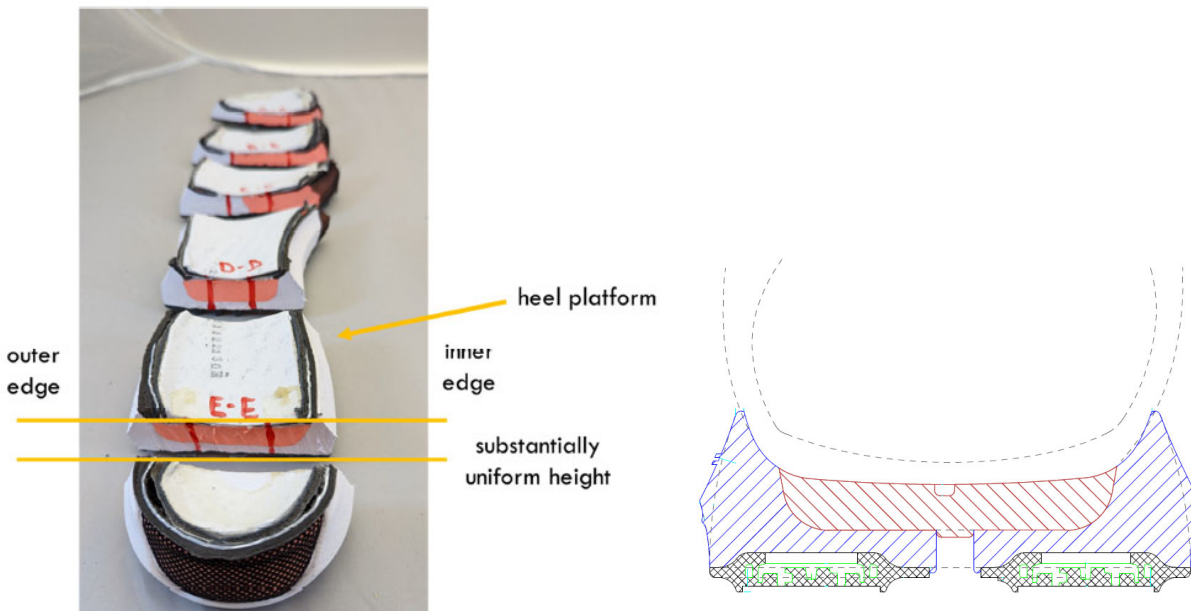
Ex. 1001, 27:47-67 (emphasis added). Based on this disclosure, a POSITA would understand that a forefoot platform constructed of a second material having a “gradient compression factor” would become “increasingly less compressible” from the inner edge to the outer edge of the forefoot platform.

This definition is also supported by the plain meaning of the term “gradient,” which is defined as “change in value of a quantity (as temperature, pressure, or concentration) with change in a given variable and esp. per unit distance in a specified direction.” Ex. 1019, Merriam-Webster’s Collegiate Dictionary.

B. “Heel Platform Having a First Height That is Substantially Uniform from an Inner Edge of the Sole Section to an Outer Edge of the Sole Section”

Petitioner does not propose that the term “a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section” requires construction for the purposes of this IPR. Patent Owner, however, appears to construe “inner edge of the sole section” and “outer edge of the sole section” 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, and to construe this limitation to include a heel platform that includes some degree of curvature and height change from its inner edge to its outer edge. For example, the accused HOVR Drive includes

a heel platform that includes some degree of curvature and height change from its inner edge to its outer edge.



Ex. 1012, Ex. D, p. 16 (excerpt from Athalonz’s infringement contentions of this claim shown on left above); Ex. 1021 (excerpt from a CAD drawing of accused product on right); Ex. 1002, ¶ 27.

Under Armour applies Athalonz’s apparent construction for purposes of this IPR without conceding alternative arguments in the counterpart litigation, *e.g.* that this term is indefinite and/or lacks written description support. *NEC Display Solutions of America, Inc. v. Ultravision Tech.*, IPR2019-01123, Paper 7, pp. 12-14 (PTAB Dec. 2, 2019).

VII. ARGUMENTS

A. Statement of the Law

All grounds rely on obviousness under 35 U.S.C. § 103. A claim is obvious when “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103(a); *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

For the grounds that rely on a single reference, the claims are obvious based on the reference in view of the “background knowledge possessed by a person having ordinary skill in the art.” *KSR*, 550 U.S. 398, 418 (2007); *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020). And to the extent all limitations are found to be disclosed in the reference, “it is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for anticipation is the epitome of obviousness.” *Real Time Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019).

B. Level of Ordinary Skill in the Art

A person of ordinary skill in the art 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’ experience

designing or developing athletic shoes. Ex. 1002, ¶ 31. Petitioner submits that the claims are obvious in view of any reasonable definition of a POSITA.

C. The Petition Should Not be Denied Under §325(d)

Assessing §325(d) requires a two-part inquiry: (1) whether the same or substantially the same art or arguments were previously presented to the Patent Office; and (2) if so, whether the petitioner has demonstrated that the Patent Office erred in some material way. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6, 8 (P.T.A.B. Feb. 13, 2020) (precedential). The Board looks to several non-exclusive factors in determining whether the first prong is met. *See Becton, Dickinson v. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17-18 (P.T.A.B. Dec. 15, 2017) (precedential as to § III.C.5, first paragraph).

With respect to the first prong of the *Advanced Bionics* inquiry—*Becton, Dickinson* factors (a), (b), and (d)—the grounds in this Petition do not present substantially the same art or arguments previously presented to the Patent Office. First, Grounds 1-3 rely primarily on Won which was not of record during prosecution, nor is it cumulative of any art that was considered.

Second, while Norton, Umezawa and Talarico ‘911 were submitted in an IDS, none were addressed during prosecution, nor included in the basis of any rejection. *See Bowtech, Inc. v. MCP IP, LLC*, IPR2019-00379, Paper 14, 18 (P.T.A.B. July 3,

2019); *Fasteners for Retail, Inc. v. RTC Indus., Inc.*, IPR2019-00994, Paper 9 at 7-11 (P.T.A.B. Nov. 5, 2019). Rather, the only rejection was a double patenting rejection over the related ‘768 patent, which the Applicant addressed by filing a Terminal Disclaimer. Ex. 1004, pp. 30-36. Thus, the Petition should not be discretionally denied. *Oticon Medical AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 (P.T.A.B. Oct. 16, 2019) (precedential as to sections II.B and II.C) (denying §325(d) arguments because, while some prior art had been considered by the Office, the petition included new art and arguments relevant to patentability); *Thorne Research, Inc. v. Trustees of Dartmouth College*, IPR2021-00491, Paper 18, 8 (P.T.A.B. Aug. 12, 2021) (“The fact that one piece of art from the combination was previously presented and/or argued to the Office alone is insufficient to satisfy the first prong of *Advanced Bionics*”).

Even if the inquiry were to reach *Advanced Bionics* prong 2—*Becton, Dickinson* factors (c), (e), and (f)—the Petition should not be discretionally denied because the examiner erred in a manner material to the patentability of the challenged claims.

First, the primary references in all grounds were never applied during prosecution. Second, during prosecution of the related ‘768 patent, identical claims to ‘456 patent claims 1-5, 7 and 9 were being prosecuted. Ex. 1011, pp. 210-11. These claims were rejected as anticipated by Talarico ‘911 in two subsequent Office

Actions. *Id.*, p. 122, 90. In response to the second rejection, Applicant narrowed the claims by amending them to require a “forefoot platform [that] has a first thickness at a position proximal to the heel platform and a second thickness at a toe portion, wherein the first thickness is greater than the second thickness,” and argued that “Talarico [‘911] does not teach or suggest such different thickness in the forefoot platform.” *Id.*, pp. 78, 80.

Notably, Applicant did not refute that Talarico ‘911 teaches all other elements of the ‘768 pending claims—*the same limitations present in challenged claims 1-5, 7 and 9 of the ‘456 patent*. After a subsequent amendment to add an additional limitation requiring that the heel platform be substantially uniform “around a perimeter of the heel platform” rather than “from an inner edge of the sole section to the outer edge of the sole section” (*id.*, pp. 49-51), and Notice of Appeal (*id.*, pp. 24-31), a Notice of Allowance issued. *Id.*, pp. 14-16. When describing the limitations that *were* taught by the prior art, the Examiner noted that Talarico ‘911 “does teach forming a forefoot platform from a material having a gradient compression factor to provide a means for tilting the foot of a wearer.” *Id.* It could only be by examiner error that the claims of the ‘456 patent were allowed over Talarico ‘911, and the other cited references that contain similar disclosures, given that identical claims had been rejected in the ‘768 patent prosecution.

D. Ground 1: Claims 10, 11, 15, 17 are Obvious Based on Won

i. Claim 10

Won teaches and/or suggests all limitations of independent claim 10. Ex. 1002, ¶ 62.

1. [10.0] An athletic shoe comprises:

To the extent the preamble is deemed limiting, Won teaches and/or suggests an athletic shoe. Won discloses a novel design for a golf shoe. Ex. 1005, Abstract, Figs. 1-5; Ex. 1002, IX.A.a.

2. [10.1] an upper section; and

Won teaches and/or suggests a golf shoe having an upper section, as depicted in Fig. 1. Ex. 1002, IX.A.b.

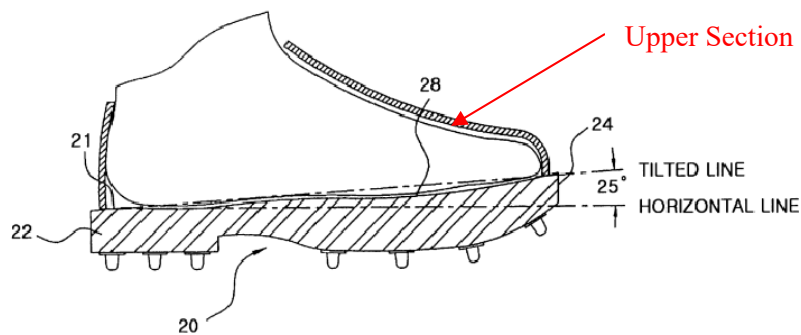
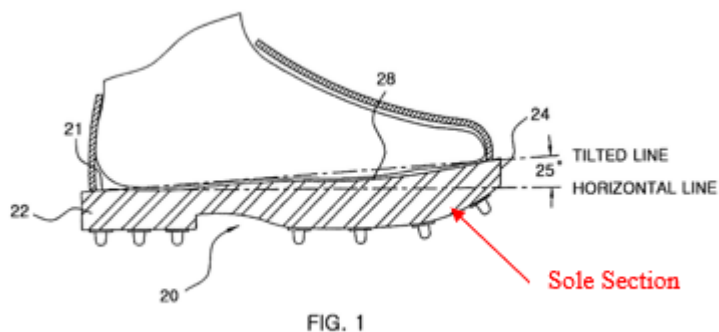


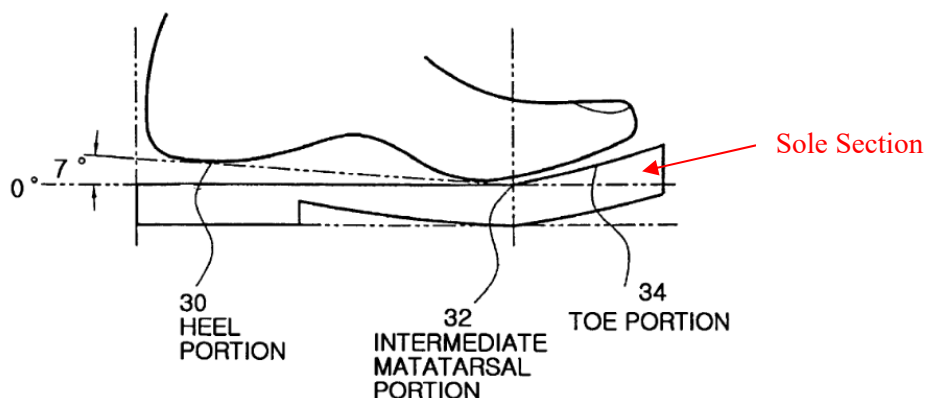
FIG. 1

3. [10.2] a sole section coupled to the upper section, wherein the sole section includes:

Won teaches and/or suggests a sole section coupled to the upper section of the shoe. Ex. 1002, IX.A.c; ¶¶ 63-64.



“The golf shoes according to this invention comprises a sole having a heel portion (30), a toe portion (34) formed continuously forwardly from the heel portion (30) and an intermediate metatarsal portion (32) formed between the heel portion (30) and the toe portion (34)....” Ex. 1005, Abstract; Figs. 1, 3.



4. [10.3] a heel platform having a first height that is substantially uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and

Won teaches and/or suggests a heel platform that has a substantially uniform height from its inner edge to its outer edge that is constructed of a material. Won

discloses golf shoe designs that include a heel platform with a substantially uniform height. *See, e.g.*, Ex. 1005, Figs. 2-7; Ex. 1002, IX.A.d.

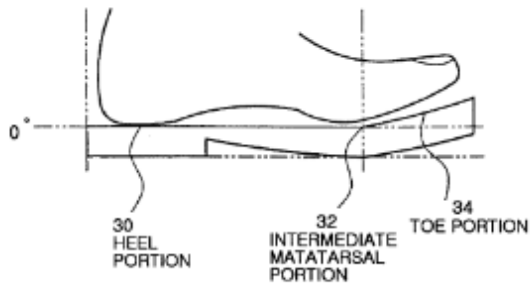


FIG. 2

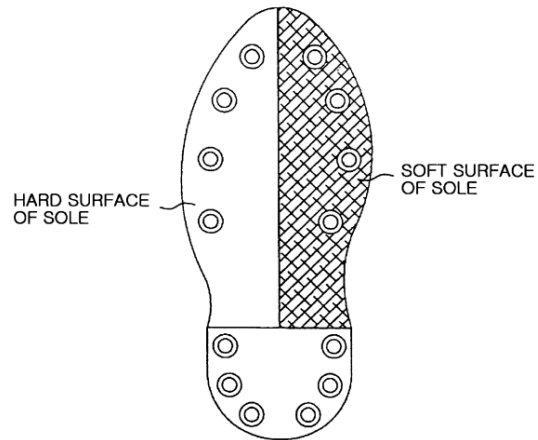


FIG. 5

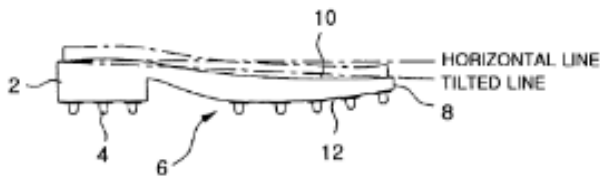


FIG. 6

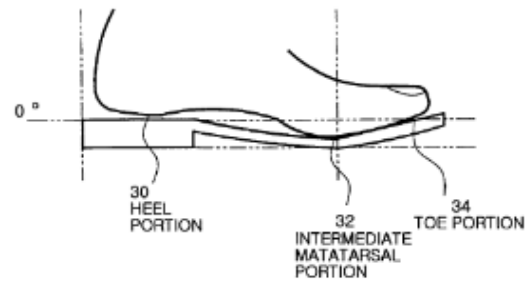


FIG. 7 PRIOR ART

For example, Figures 2, 6 and 7, all show a uniform height heel section, and Won describes that “it is preferred that said heel portion is ... substantially 0 degrees” from rear to front. Ex. 1005, 2:51-53; *see also, id.* 4:6-12 (“the best stabilized stance” is provided when “the heel portion section is tilted 0 degrees from the horizontal line.”). Ex. 1002, ¶ 65. A POSITA would also understand that the heel platform must be level from the inner edge to the outer edge to obtain the desired zero-degree tilt across the entire width of the heel. *Id.*

Won also describes that Figures 6 and 7 depict a “conventional” golf shoe, which a POSITA would understand includes a heel platform that is substantially uniform in height from its inner edge to its outer edge based on Patent Owner’s apparent interpretation of this limitation. Ex. 1002, ¶¶ 55-61, 66. And Won teaches that the bottom surfaces of the heel platform and the toe platform of the prior art shoes are almost in parallel, further confirming that these are substantially flat surfaces from the inside edge of the shoe to the outside edge of the shoe. Ex. 1005, 1:42-50; Ex. 1002, ¶ 66.

To the extent it is not clear that the embodiment disclosed in Figure 5 has a “conventional” heel that is substantially uniform in height from its inner edge to its outer edge, a POSITA would have recognized that the conventional heel, for example, as depicted in Figures 6 and 7, could be used in this embodiment without altering the forefoot, or the rest of the shoe’s, design. Ex. 1002, ¶ 67.

5. [10.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed to have a first level of compression proximal to the outer edge of the shoe and a second level of compression proximal to an inner edge of the shoe, wherein the second level of compression is greater than the first level of compression.

Won teaches and/or suggests a golf shoe having a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of two materials, the material on the inside of the forefoot platform being softer and more

compressible than the outside of the forefoot platform, as depicted in Figure 5. Ex. 1002, IX.A.e.

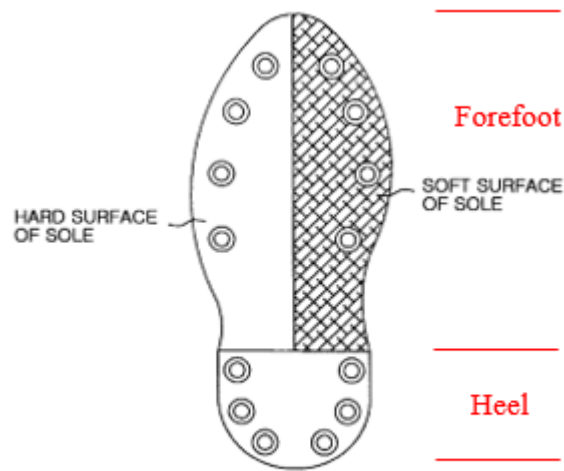


FIG. 5

Won explains:

[T]he golf shoes can be formed such that the inside surface and outside surface separated by a central longitudinal axis of the sole (or mid sole) are different from each other. The inside surface is soft surfaced and outside surface is hard surfaced, both of which are made from elastic materials. When a golfer puts his both feet together to take a stance for swing, the spikes fitted on the part of the soft surface are pressed down because they are fixed on soft surface. But spikes formed on the hard surface remain the same position so that the sole is tilted toward the soft surface. Therefore the pair of shoes facing each other can be easily tilted to the insides of the shoes.

Ex. 1005, 4:46-58; *see also* claim 1 at 6:28-36.

With this configuration, Won is constructed to have a first level of compression proximal to the outer edge of the shoe (the outer hard surface area of Won) and a second level of compression proximal to an inner edge of the shoe (the

inner soft surface of Won), wherein the second level of compression is greater than the first level of compression.

ii. Claim 11 - The athletic shoe of claim 10, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.

Won teaches and/or suggests golf shoes that include a forefoot section that comprises a mid-foot section and a toe section. Ex. 1002, IX.A.f. Won explains:

The sole ... comprises an intermediate metatarsal portion formed between toe portion (34) and heel portion (30), and the highs of said toe portion (34), heel portion (30) and intermediate metatarsal portion (32) are curved so as to accompany the sole of a foot and toe portion (34) which is the front portion of the sole

Ex. 1005, 3:26-32; *see also* Figs. 2-7.

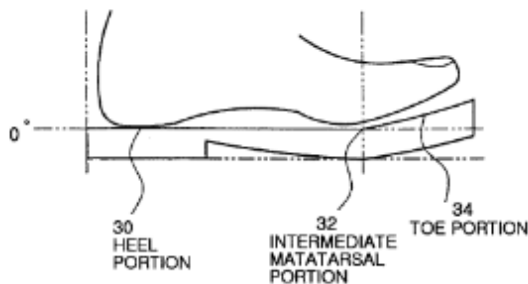


FIG. 2

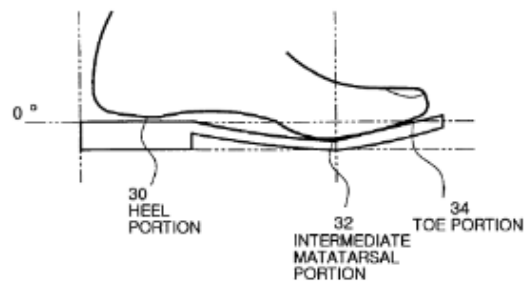


FIG. 7 PRIOR ART

iii. Claim 15 - The athletic shoe of claim 10, wherein the heel platform further comprises: the first material having a first compression factor.

See limitation 10.3 above, describing Won's disclosure of a heel platform that is made of a material, which inherently has some compression factor. Ex. 1002, ¶ 68.

iv. Claim 17 - The athletic shoe of claim 10, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.

Won describes that “FIG. 2 to FIG. 4 represent the slope of the sole, and FIG. 5 is a plain view illustrating the sole or mid sole of the golf shoes of the present invention.” Ex. 1005, 3:24-26; Ex. 1002, IX.A.h.

E. Ground 2: Claims 1-5, 7, 12-14 are Obvious Over Won in View of Norton

Claim 1 is similar to claim 10, discussed in ground 1, but also recites a “forefoot platform [] constructed of a second material having a gradient compression factor.”¹ To the extent this limitation requires that the forefoot platform become “increasingly less compressible” from its inner edge to its outer edge, as discussed in Section VI.A, these claims would be obvious based on Won in view of Norton. Ex. 1002, ¶ 69.

Overview of the Combination

The combination of Won and Norton renders claims 1-5, 7, and 12-14 obvious. Ex. 1002, ¶ 70. Won discloses a golf shoe wherein the sole is constructed of two materials of varying density side-by-side, as discussed in Ground 1, but does

¹ While claim 10 recites that the heel platform is constructed of a “first material” and the forefoot platform of a “second material,” Athalonz suggests that they can be the same material, *see, e.g.* Ex. 1012, pp. 30-44, accusing shoes with the heel platform and forefoot platform constructed of the same material(s) as infringing claim 1. Without conceding alternative arguments, Under Armour applies Athalonz’s apparent construction. *NEC*, IPR2019-01123, pp. 12-14.

not explicitly disclose a forefoot platform that becomes “increasingly less compressible” from its inner edge to its outer edge. Norton, however, does. *Id.*

Rationale (Motivation) Supporting Obviousness

It would have been obvious to incorporate a forefoot platform constructed of a single material having a varying density distribution, as taught by Norton, into the shoe disclosed in Won. Ex. 1002, ¶ 71. A POSITA would have found it obvious to have combined the teaching of Won and Norton with a predictable outcome. *Id.*

Won and Norton are both in the same field (shoe design), and both disclose similar improvements over typical shoes, namely, the use of one or more materials to provide a variable compression sole. *Id.*, ¶ 72. A POSITA would have naturally looked to Norton when considering ways to improve the Won sole design. *Id.*

Norton identifies several prior art shoes having varied compression soles that consist of two materials used side-by-side (Ex. 1007, 1:63-2:50, Figs. 11A-11C, 12), like that disclosed in Won, and suggests several advantages that its single-material sole provides. For example, Norton explains that its prescribed manufacturing technique avoids the “severe disadvantage” associated with connecting two different materials of different densities together, which “requires not only increased labor consumption, but also leads to interconnection problems, since the two materials with different densities have to be compatible with each other.” *Id.*, 2:54-67; 3:9-24. Norton teaches a single-material sole to overcome these problems:

One aspect of one embodiment of the present invention is to not use two different materials with different densities to create the density variation over the sole element and to connect these materials subsequently, but to use a single material being supplied as a preform and having a thickness distribution that is transformed by pressure forming into the desired density distribution.

Id., 3:9-15; Ex. 1002, ¶ 73.

With Norton's technique, "[d]ensity can increase gradually from a lateral side of the sole element to a medial side of the sole element or density can decrease gradually from a lateral side of the sole element to a medial side of the sole element. ... Sole elements manufactured by such a method can be adapted to different sports and to the different anatomy of a respective wearer." Ex. 1007, 4:7-21; Ex. 1002, ¶ 74.

Norton also explains that a sole that is increasingly less compressible from the inside to the outside of the forefoot provides several benefits. Ex. 1002, ¶ 75. For example, providing a compression gradient allows for more effective treatment of foot pronation and supination by providing a sole with different hardnesses, and a locally changing and specifically adapted density distribution. *Id.*; Ex. 1007, 6:33-38; 9:30-34. A compression gradient also provides "a more even and gradual alteration of the weight-bearing gravitational forces as they are delivered and directed across the forefoot section of the footwear during the midstance and propulsive phases of gait" which is "generally preferred to the medial and lateral half dual-density methods." Ex. 1008, 12:41-47.

Graham Factors

The **level of ordinary skill** is as proposed in Section VII.B.

The **scope and content of the prior art** are discussed throughout the Ground.

The **differences between the prior art and the claims** are discussed in the “Overview of the Combination” and below.

Petitioner is not aware of any **secondary considerations** that would make an inference of non-obviousness more likely.

Reasonable Expectation of Success

A POSITA would have had a reasonable expectation of success in substituting a sole element constructed of a single material having a varying density distribution, like that in Norton, into the shoe disclosed in Won. Ex. 1002, ¶ 76. Won’s multi-material sole or midsole could easily be replaced with a single material sole element as disclosed in Norton to provide a similar compressibility difference between the inner and outer edge of the forefoot, but also provide the additional benefits described above. *Id.* In fact, Norton identified similar dual-material soles like that disclosed in Won, and suggested its manufacturing technique would be suitable to replace such a sole with one made from a single material, as discussed above. *See, e.g.* Ex. 1007, 2:20-3:24, Figs. 11A-12. The art was relatively predictable in the relevant timeframe. Ex. 1002, ¶ 76. A POSITA would also have been able to make

any necessary modifications to the shoe or shoe components to implement this Ground. *Id.*

Analogous Art

Norton and Won are analogous art because they are in the same field as the ‘456 patent (Ex. 1001, ‘456 patent at Abstract, Title) (Ex. 1007, Norton at Abstract, Title) (Ex. 1005, Won at Abstract, Title), and all three relate to shoe designs that incorporate compressibility differentials within the sole. *Id.*, ¶ 77.

Claims 1-5, 7, 9, 12-14 Are Obvious Based on Won in View of Norton

i. Claim 1

The following limitations of claim 1 are similar to those in claim 10 and are disclosed by Won:

- [1.0] An athletic shoe comprises:
- [1.1] an upper section; and
- [1.2] a sole section coupled to the upper section,
- [1.3] a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and

See the corresponding discussions above for limitations [10.0] – [10.3], in Ground 1, respectively. Ex. 1002, ¶¶ 78-79.

1. [1.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the

athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second level of compression is greater than the first level of compression.

Won teaches and/or suggests a golf shoe having a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of two materials, the material on the inside of the forefoot platform being softer and more compressible than the outside of the forefoot platform, see limitation 10.4 in Ground 1. Ex. 1002, ¶ 80.

It would also be obvious to make the forefoot platform of Won become “increasingly less compressible” as you move from its inner edge to its outer edge, in view of Norton, which expressly discloses this limitation and how it improves upon the dual-material design of Won. Ex. 1002, ¶¶ 81-82.

Norton states:

In one aspect, an embodiment of the invention relates to a method of manufacturing a sole element for a shoe, where ***the sole element has a varying density distribution in at least one direction, for example a transverse and/or longitudinal direction.*** The method includes manufacturing a sole element preform from a polymer material with a thickness varying in the transverse and/or longitudinal direction depending on the specific density distribution desired and press-forming the sole element preform in a forming tool to form the finished sole element from the sole element preform.

Ex. 1007, 3:33-43 (emphasis added).

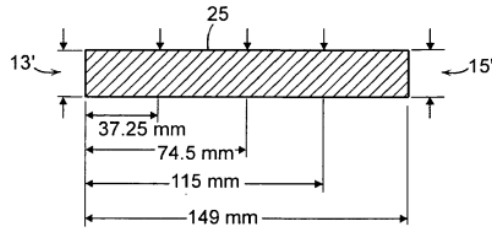


FIG. 4B

Referencing Figure 4B, Norton explains that “[i]f the hardness of the resulting sole element 25 is measured with reference to the distance from the left side 13’, the following values shown in Table 2 are obtained:”

TABLE 2	
Hardness distribution of the shaped sole unit from the medial side 13' to the lateral side 15' in one embodiment	
DISTANCE FROM THE MEDIAL SIDE [MM]	HARDNESS [C]
0	60.0
37.25	57.5
74.50	55.0
115.0	52.5
149.0	50.0

Id., 7:44-58.

[T]he hardness (measured in Shore C) decreases from about 60 C to about 50 C. Therefore, a reduction of about 10 C is obtained (i.e., in the range of about 15% to 20%), if the preform 20 is as described in Table 1 and consists of polyurethane.” *Id.*, 7:60-64. This ‘***continuously varying density distribution***’ is due to the “surplus of material on the left side 13, which is compressed more than the material on the right side 15 during the final forming step.

Id., 8:12-18 (emphasis added).

While Table 2 discloses a sole that is less compressible near its inner edge, Norton discloses embodiments that both increase and decrease in

density from the lateral side to the medial side of the sole (*id.*, 4:7-21; 6:33-37), and a POSITA would know to invert the hardness values in Table 2 for a sole designed to be more compressible near its inner edge. Ex. 1002, ¶ 83.

ii. Claim 2 - The athletic shoe of claim 1, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.

See claim 11 in Ground 1, describing Won’s disclosure of golf shoes that include a forefoot section that comprises a mid-foot section and a toe section. Ex. 1002, ¶ 84.

iii. Claim 3 - The athletic shoe of claim 1, wherein the second material comprises: a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.

See limitation 1.4 above, describing Norton’s disclosure of a forefoot platform manufactured from a material that becomes “increasingly less compressible” from its inner edge to its outer edge. Ex. 1002, ¶ 85.

iv. Claim 4 - The athletic shoe of claim 3, wherein the resilient material comprises one or more of: a rubber, a gel, a foam, a synthetic material.

Norton teaches and/or suggests a midsole that comprises a synthetic material and/or a foam. Ex. 1002, IX.B.d, ¶ 86.

The sole element includes a homogeneous polymer material including a portion having a locally varying density. The homogeneous polymer material may include ethylene vinyl acetate.

Ex. 1007, 3:59-61; *see also* 6:56-60 (disclosing EVA and “other foamed materials” such as PU). Won also discloses a forefoot made of “elastic materials.” Ex. 1005, 4:50-52; Ex. 1002, ¶ 87.

v. Claim 5 - The athletic shoe of claim 1, wherein the second material comprises: a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.

See limitation 1.4 above, describing Norton’s disclosure of a forefoot platform manufactured from a material that becomes “increasingly less compressible” from its inner edge to its outer edge, and Won’s disclosure of a forefoot platform constructed of two materials configured to provide variable compression. In view of these disclosures, it would have been an obvious design choice whether to use one or a plurality of materials to achieve the benefits of gradient compression. Ex. 1002, ¶ 88.

vi. Claim 7 - The athletic shoe of claim 1, wherein the heel platform further comprises: the first material having a first compression factor.

See limitation 10.3 in Ground 1 above, describing Won’s disclosure of a heel platform that is made of a material, which inherently has some compression factor. Ex. 1002, ¶ 89.

vii. Claim 9 - The athletic shoe of claim 1, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.

Won describes that “FIG. 2 to FIG. 4 represent the slope of the sole, and FIG. 5 is a plain view illustrating the sole or mid sole of the golf shoes of the present invention.” Ex. 1005, 3:24-26; Ex. 1002, ¶ 90.

viii. Claims 12 – 14

Claim 12-14 depend from claim 10. See the discussion in Ground 1, claim 10 describing Won’s disclosure of the athletic shoe of claim 10. Claims 12-14 lack antecedent basis for “the gradient compression factor.” Regardless, aside from depending from claim 1 as opposed to claim 10, the limitations of claims 12-14 are similar to those in claims 3-5, discussed above, and are therefore invalid for the same reasons. Ex. 1002, ¶ 91.

F. Ground 3 - Claims 1-5, 7, 9, 12-14 are Obvious Over Won in View of Talarico ‘911

Ground 3 is similar to Ground 2, but relies on Talarico ‘911 rather than Norton as the secondary reference to disclose a forefoot platform that is “increasingly less compressible” from its inner edge to its outer edge. Ex. 1002, ¶ 92.

Overview of the Combination

The combination of Won and Talarico ‘911 renders claims 1-5, 7, 9, and 12-14 obvious. *Id.*, ¶ 93. Won discloses a golf shoe wherein the sole is constructed of two materials of varying density side-by-side, as discussed in Ground 1, but does

not explicitly disclose a forefoot platform that becomes “increasingly less compressible” from its inner edge to its outer edge. Talarico ‘911, however, does. *Id.*

Rationale (Motivation) Supporting Obviousness

It would have been obvious to incorporate a sole element having forefoot platform that becomes “increasingly less compressible” from its inner edge to its outer edge, as taught by Talarico ‘911, into the shoe disclosed in Won. *Id.*, ¶ 94. A POSITA would have found it obvious to have combined the teaching of Won and Talarico ‘911 with a predictable outcome. *Id.*

Won and Talarico ‘911 are both in the same field (shoe design), and both disclose similar improvements over typical shoes, namely, the use multiple materials to provide a variable compression sole. *Id.*, ¶ 95. A POSITA would have naturally looked to Talarico ‘911 when considering ways to improve the Won sole design. *Id.* A POSITA would have understood that a sole that is increasingly less compressible from the inside to the outside of the forefoot to provide several benefits. *Id.* Indeed, Talarico ‘911 sought to improve upon the exact type of “medial and lateral half dual density” soles that Won disclosed. For example, as Talarico ‘911 explains, its design is “generally preferred to the medial and lateral half dual-density methods because of a more even and gradual alteration of the weight-bearing gravitational forces as they are delivered and directed across the forefoot section of the footwear.” Ex.

1008, 12:41-47; *see also id.*, 13:23-45 (design provides improved foot alignment and weight distribution, less wasted movement).

Graham Factors

The **level of ordinary skill** is as proposed in Section VII.B.

The **scope and content of the prior art** are discussed throughout the Ground.

The **differences between the prior art and the claims** are discussed in the “Overview of the Combination” and below.

Petitioner is not aware of any **secondary considerations** that would make an inference of non-obviousness more likely.

Reasonable Expectation of Success

A POSITA would have had a reasonable expectation of success in incorporating an insole having a compression gradient, like that in Talarico ‘911, into the shoe disclosed in Won. Ex. 1002, ¶ 96. The vertical intersection of the two sole materials disclosed in Won could easily be replaced with the angled intersection between the materials as disclosed in Talarico ‘911, as shown in Figs. 9 and 13, to provide the additional benefits described above. *Id.* The art was relatively predictable in the relevant timeframe. *Id.* A POSITA would also have been able to make any necessary modifications to the shoe or shoe components to implement this Ground. *Id.*

Analogous Art

Talarico '911 and Won are analogous art because they are in the same field as the '456 patent (Ex. 1001, '456 patent at Abstract, Title) (Ex. 1008, Talarico '911 at Abstract, Title) (Ex. 1005, Won at Abstract, Title), and all three relate to shoe designs that incorporate compressibility differentials within the sole. *Id.*, ¶ 97.

Claims 1-5, 7, 9, 12-14 Are Obvious Based on Won in View of Talarico '911

i. Claim 1

Limitations [1.0] – [1.3] of claim 1 are similar to limitations [10.0] – [10.3] and are disclosed by Won. See the corresponding discussions above for limitations [10.0] – [10.3], in Ground 1, respectively. Ex. 1002, ¶¶ 98-99.

1. [1.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second level of compression is greater than the first level of compression.

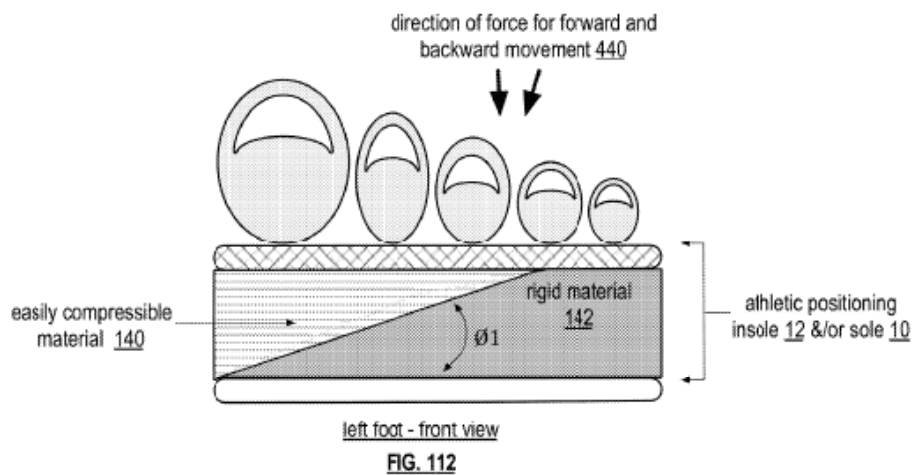
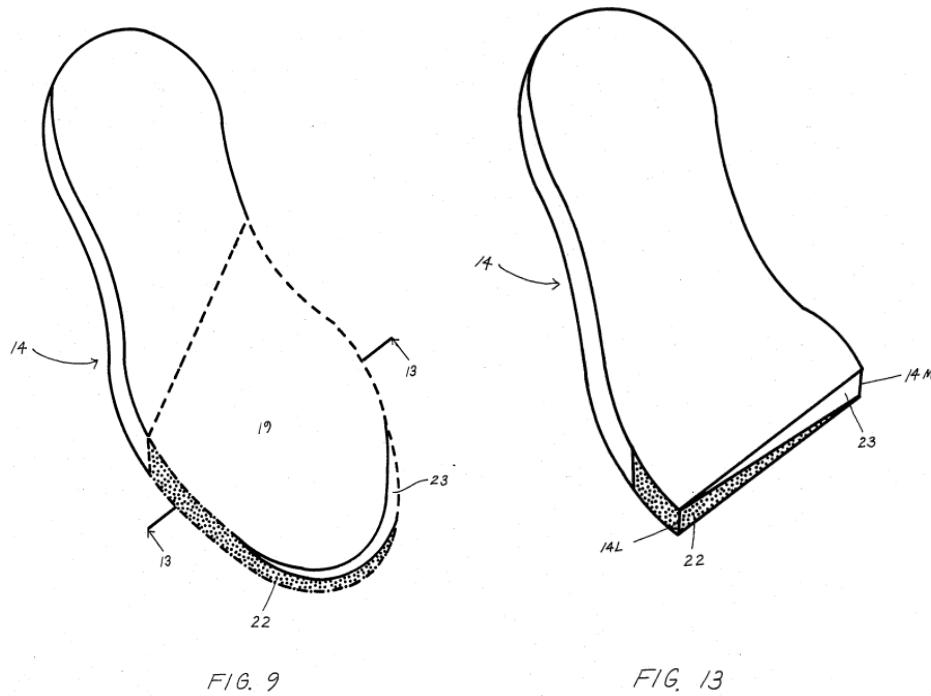
Won teaches and/or suggests a golf shoe having a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of two materials, the material on the inside of the forefoot platform being softer and more compressible than the outside of the forefoot platform, see limitation 10.4 in Ground 1. Ex. 1002, ¶ 100.

To the extent this limitation requires that the forefoot platform become “increasingly less compressible” over more than two points as you move from its inner edge to its outer edge, it is obvious in View of Talarico ‘911, which expressly discloses it. Ex. 1002, ¶ 101, IX.C.a.

For example, Talarico ‘911 explains:

The present invention is intended for any and all footwear wherein dual-density or dual-compressibility materials or combinations of different materials may be incorporated into either the midsole, outersole, or innersole construction of the footwear.

Ex. 1008, 1:11-18. In one embodiment, Talarico ‘911 discloses a sole created from 45-degree meshing of the two materials, which allows for “a more even and gradual alteration of the weight-bearing gravitational forces as they are delivered and directed across the forefoot section of the footwear during the midstance and propulsive phases of gait,” as depicted in Figs. 9 and 13 below, shown in comparison to Fig. 112 of the ‘456 patent. *Id.*, 12:41-47, *see also id.*, 11:42-55, 12:41-47.



Id., Figs. 9, 13; Ex. 1001, Fig 112.

Here, “the material employed on the lateral half of the forefoot is denser than the material used on the medial half of the forefoot.” Ex. 1008, 11:64-68. A POSITA would have been motivated to replace the vertical intersection of the two

sole materials disclosed in Won with the angled intersection between the materials as disclosed in Talarico '911 to gain the described benefits. Ex. 1002, ¶ 102.

Talarico '911 also explains that the varied density across the forefoot platform would cause the sole elements to compress more near their inner edge than near their outer edge when the weight of an athlete is applied to the shoe. *See, e.g. id.*, Abstract (“the sole effectively slopes at an angle upwardly from the lateral aspect to the medial aspect when weight-bearing forces are exerted on the forefoot”), 19:50-63; Ex. 1002, ¶ 102. And in the '768 patent's Notice of Allowance, the Examiner found that Talarico '911 “does teach forming a forefoot platform from a material having a gradient compression factor to provide a means for tilting the foot of a wearer....” Ex. 1011, p. 15; Ex. 1002, ¶ 103.

ii. Claim 2 - The athletic shoe of claim 1, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.

See claim 11 in Ground 1, describing Won's disclosure of golf shoes that include a forefoot section that comprises a mid-foot section and a toe section. Ex. 1002, ¶ 104.

iii. Claim 3 - The athletic shoe of claim 1, wherein the second material comprises: a resilient material of varying density to

provide a compressible gradient to provide the gradient compression factor.

See limitation 1.4 above, describing Talarico '911's disclosure of a forefoot platform that becomes "increasingly less compressible" from its inner edge to its outer edge. Ex. 1002, ¶ 105.

iv. Claim 4 - The athletic shoe of claim 3, wherein the resilient material comprises one or more of: a rubber, a gel, a foam, a synthetic material.

Won and Talarico '911 teach and/or suggest a resilient material that comprises one or more of a rubber, a gel, a foam, or a synthetic material. Ex. 1002, ¶ 106. Won explains that the forefoot platform is made up of two different "elastic materials." Ex. 1005, 4:50-52. A POSITA would understand that an "elastic material" includes at least the claimed rubber and synthetic materials, and that shoe soles made of these claimed materials were well known at the relevant time. *Id.*, ¶ 107.

Similarly, Talarico '911 teaches and/or suggests a midsole that comprises a synthetic material. Ex. 1002, IX.C.h.

In these examples of a running shoe midsole, usually ethyl vinyl acetate (EVA) or polyurethane are the materials commonly utilized in their construction.

Ex. 1008, 18:45-47.

v. Claim 5 - The athletic shoe of claim 1, wherein the second material comprises: a plurality of material configured to

provide a shape of the forefoot platform and to provide the gradient compression factor.

See limitation 1.4 above, describing Talarico '911's disclosure of a forefoot platform constructed of two materials that becomes "increasingly less compressible" from its inner edge to its outer edge. Ex. 1002, ¶ 108.

vi. Claim 7 - The athletic shoe of claim 1, wherein the heel platform further comprises: the first material having a first compression factor.

See limitation 10.3 in Ground 1 above, describing Won's disclosure of a heel platform that is made of a material, which inherently has some compression factor. Ex. 1002, ¶ 109.

vii. Claim 9 - The athletic shoe of claim 1, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.

Won describes that "FIG. 2 to FIG. 4 represent the slope of the sole, and FIG. 5 is a plain view illustrating the sole or mid sole of the golf shoes of the present invention." Ex. 1005, 3:24-26; Ex. 1002, ¶ 110.

viii. Claims 12 – 14

Claim 12-14 depend from claim 10. See the discussion in Ground 1, claim 10 describing Won's disclosure of the athletic shoe of claim 10. Claims 12-14 lack antecedent basis for "the gradient compression factor." Regardless, aside from depending from claim 1 as opposed to claim 10, the limitations of claims 12-14 are similar to those in claims 3-5, discussed above, and are therefore invalid for the same reasons. Ex. 1002, ¶ 111.

G. Ground 4 - Claims 1-5, 7, 9-15, 17 are Obvious Based on Umezawa

A POSITA would have found claims 1-5, 7, 9-15, and 17 obvious based on Umezawa. Ex. 1002, ¶ 112.

i. Claim 1

Umezawa teaches and/or suggests all limitations of independent claim 1.

1. [1.0] An athletic shoe comprises:

To the extent the preamble is deemed limiting, Umezawa teaches and/or suggests an athletic shoe. Umezawa discloses that “[t]he present invention relates to shoes suitable for golf, tennis, squash, field hockey, basketball, aerobic exercise or the like.” Ex. 1006, ¶ 3; Ex. 1002, IX.D.a.

2. [1.1] an upper section; and

Umezawa teaches and/or suggests a golf shoe having an upper section. Ex. 1002, IX.D.b.

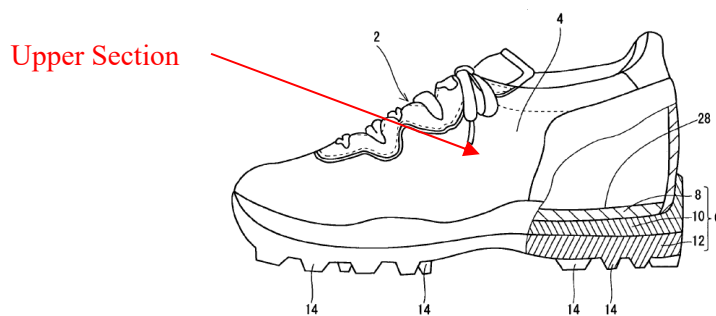


Fig. 1

“A golf shoe 2 illustrated in FIG. 1 comprises an upper 4 and a bottom part 6. ... The material and structure for the upper 4 are equal to those of [a] known [shoe] upper.” Ex. 1006, ¶ 32.

3. [1.2] a sole section coupled to the upper section, wherein the sole section includes:

Umezawa teaches and/or suggests a bottom part 6 connected to the upper section of the shoe, as shown in Figure 1. Ex. 1002, IX.D.c; ¶ 113.

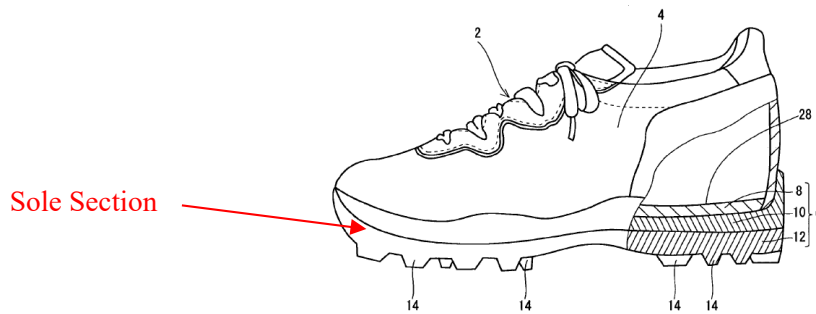


Fig. 1

“A golf shoe 2 illustrated in FIG. 1 comprises an upper 4 and a bottom part 6. The bottom part 6 has an insole 8, a midsole 10 and an outsole 12.” Ex. 1006, ¶ 32.

4. [1.3] a heel platform having a first height that is substantially uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and

Umezawa teaches and/or suggests a heel platform that has a substantially uniform height from its inner edge to its outer edge that is constructed of a material. Ex. 1002, IX.D.d. Umezawa explains that the material and structure of the remainder of the golf shoe, including that of the upper, the insole and the outsole, are the same as those of previously known golf shoes. *Id.* A POSITA would understand that “known” athletic shoes, including golf, running, basketball and

skateboarding shoes, include a heel platform that is substantially uniform in height from its inner edge to its outer edge based on Patent Owner's apparent interpretation of this limitation. Ex. 1002, ¶¶ 55-61, 114.

Umezawa also discloses that the novel midsole has a platform 16 with a consistent thickness throughout, aside from side wall 18.

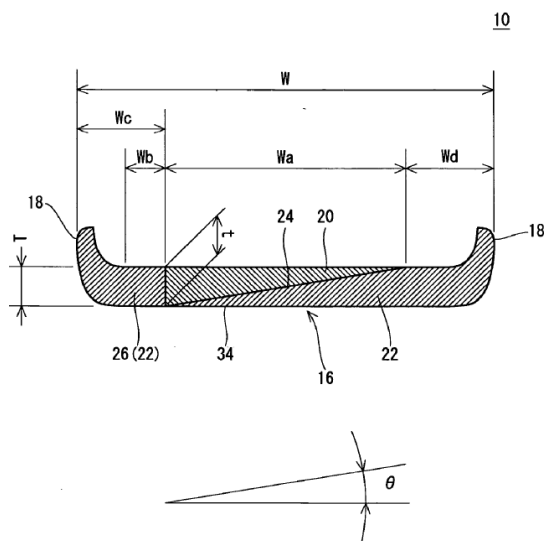


Fig. 4

The length designated by both-oriented arrow T in FIG. 4 is the thickness of the midsole 10. The thickness T is measured on a cross-section surface along the lateral line B. The thickness T is the maximum thickness among the parts except for the side wall 18. The thickness T is preferably 2 mm or more and more preferably 5 mm or more. The thickness T is preferably 25 mm or less, more preferably 20 mm or less and particularly preferably 15 mm or less.

Ex 1006, ¶ 52.

“[T]he midsole 10 has a base 16 and a side wall 18 which is located on the outer edge of this base 16.” *Id.*, ¶ 33. This base includes the heel platform, as shown in Figs. 2-4.

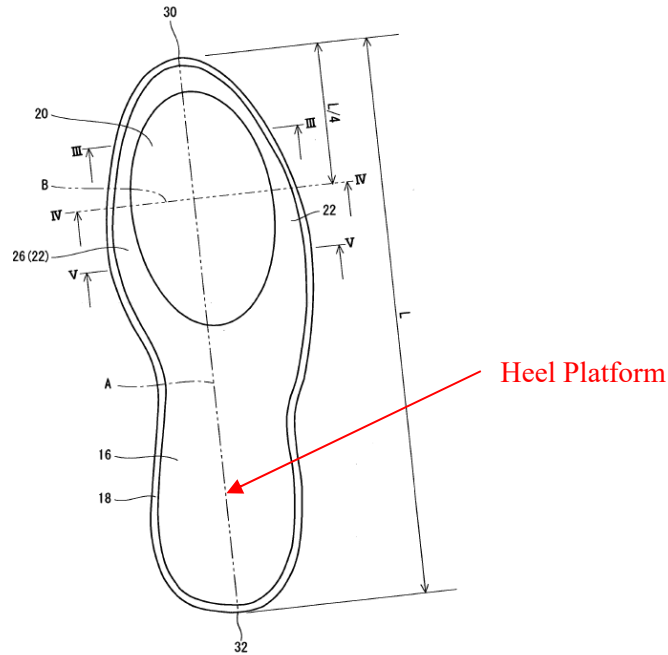


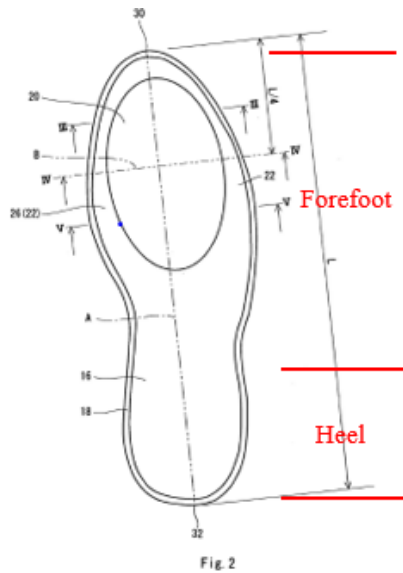
Fig. 2

A POSITA would understand that Umezawa's disclosure of a typical golf shoe having a known or typical outsole, along with an insole having a consistent-thickness heel section would result in a heel platform having a substantially uniform height from its inner edge to its outer edge. Ex. 1002, ¶ 114.

5. [1.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second

level of compression is greater than the first level of compression.

Umezawa teaches and/or suggests a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor. Ex. 1002, IX.A.e; Ex. 1006, Fig. 2.



Umezawa discloses a midsole with a forefoot platform made up of a “second material” having “a low elastic part 20 and a high elastic part 22,” such that when an athlete wears the shoe, the low elastic part compresses more than the high elastic part, as depicted in Figs. 2-3, and 6 below, shown in comparison to Fig. 112 of the ‘456 patent. Ex. 1006, ¶ 36.

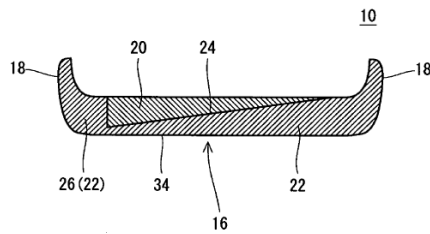


Fig. 3

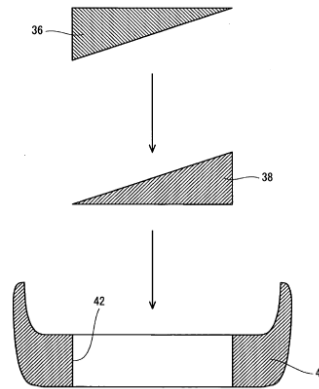


Fig. 6

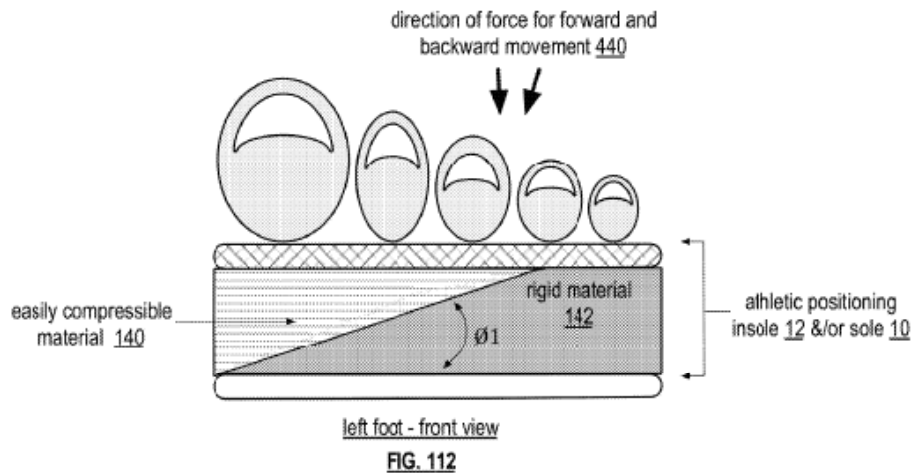


FIG. 112

Id., Figs. 2, 3, 6; Ex. 1001, Fig 112.

Umezawa explains that “[t]he elastic modulus of the low elastic part 20 is lower than that of the high elastic part 22. When a compression load is applied to the midsole 10, the low elastic part 20 is more easily deformed than the high elastic part 22.” Ex. 1006, ¶ 36.

In this midsole 10, thickness of the low elastic part 20 and high elastic part 22 gradually changes along the inclined surface 24. Accordingly, the compression deformation in the midsole 10 changes continuously along the inclined surface 24 from the inside to the outside. The compression deformation does not change rapidly. The continuous

change contributes to stability of swing. A stable swing suppresses variation of flight distance. Furthermore, a stable swing suppresses variation of flight direction of a golf ball. The midsole 10 whose compression deformation changes continuously does not cause discomfort during walking.

Id., ¶ 43.

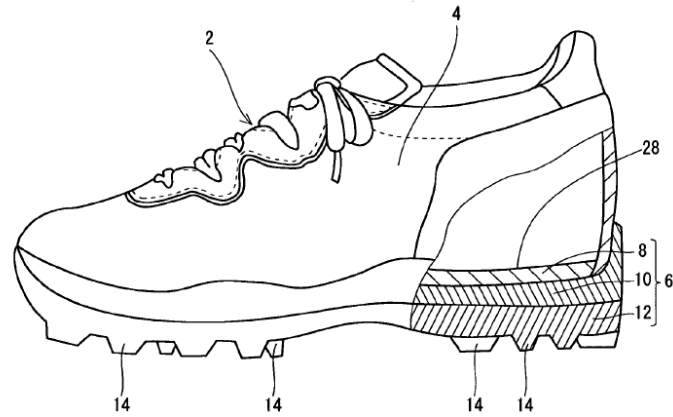
Umezawa further explains that:

When a golf player wears these golf shoes 2 and the body weight of the golf player is applied to the bottom part 6, this midsole 10 is compressed. Since the thickness of the low elastic part 20 is larger in the inside, the inside compression deformation is larger. Since the thickness of the high elastic part 22 is larger in the outside, outside compression deformation is smaller. In this midsole 10, applying the body weight generates unbalanced deformation. Deformation of the midsole 10 displaces the position of an upper surface 28 (FIG. 1) of the insole 8. The downward displacement of the upper surface 28 in the inside is larger than the downward displacement of the upper surface 28 in the outside. The insole 8 inclines upward from the inside to the outside.

Id., ¶ 38.

- ii. Claim 2 - The athletic shoe of claim 1, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.**

Umezawa teaches and/or suggests a shoe wherein the forefoot section comprises a mid-foot section and a toe section proximal to the midfoot section. *See, e.g.* annotated Figs. 1-2; Ex. 1002, IX.D.f.



Forefoot Section

Fig. 1

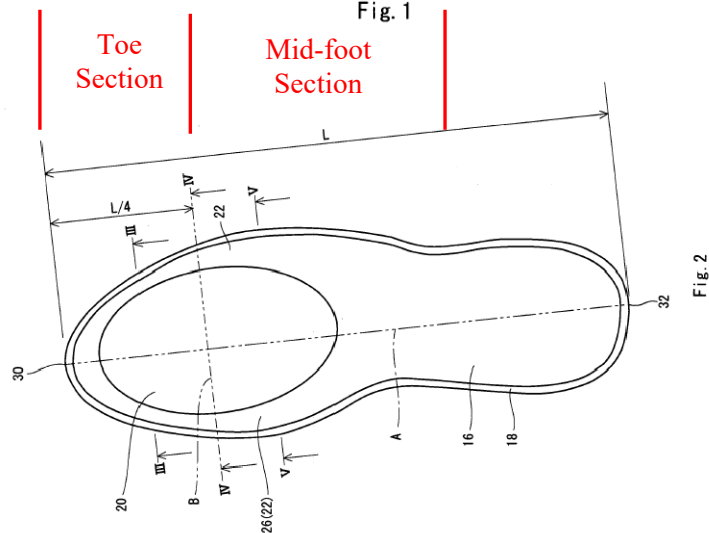


Fig. 2

- iii. **Claim 3** - The athletic shoe of claim 1, wherein the second material comprises: a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.

See limitation 1.4 above, describing Umezawa's disclosure of a golf shoe having a midsole with a forefoot platform made up of a low elastic part and a high elastic part. Ex. 1002, ¶ 115.

- iv. Claim 4 - The athletic shoe of claim 3, wherein the resilient material comprises one or more of: a rubber, a gel, a foam, a synthetic material.**

Umezawa teaches and/or suggests a midsole that comprises a synthetic material:

A typical base polymer of the midsole 10 is an ethylene-vinyl acetate (EVA). ... It is preferable that an EVA and a polyolefin are used in combination as a base polymer for the midsole. ... The preferable polyolefin include an ethylene-octane copolymer, an ethylene-butene copolymer, polypropylene and a polyethylene.

Ex. 1006, ¶ 34; Ex. 1002, IX.D.h.

- v. Claim 5 - The athletic shoe of claim 1, wherein the second material comprises: a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.**

See limitation 1.4 above, describing Umezawa's disclosure of a golf shoe having a midsole with a forefoot platform made up of a low elastic part and a high elastic part configured to provide a shape of the forefoot platform and the gradient compression factor. Ex. 1002, ¶ 116.

- vi. Claim 7 - The athletic shoe of claim 1, wherein the heel platform further comprises: the first material having a first compression factor.**

See limitation 1.3 above, describing Umezawa's disclosure of a heel platform that is made of a material, which inherently has some compression factor. Ex. 1002, ¶ 117.

vii. Claim 9 - The athletic shoe of claim 1, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.

Umezawa teaches and/or suggests a golf shoe having a sole section that includes an insole, midsole and an outsole. “A golf shoe 2 illustrated in FIG. 1 comprises an upper 4 and a bottom part 6. The bottom part 6 has an insole 8, a midsole 10 and an outsole 12. The insole 8 is laminated with the midsole 10. The midsole 10 is laminated with the outsole 12.” Ex. 1006, ¶ 32; Ex. 1002, IX.D.k.

viii. Claim 10

Umezawa teaches and/or suggests all limitations of independent claim 10. Limitations [10.0] – [10.3] are similar to limitations [1.0] – [1.3]. See the corresponding discussions above for limitations [1.0] – [1.3], respectively; Ex. 1002, ¶ 118.

1. [10.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed to have a first level of compression proximal to the outer edge of the shoe and a second level of compression proximal to an inner edge of the shoe, wherein the second level of compression is greater than the first level of compression.

Limitation 10.4 is similar to limitation 1.4 in that both require the forefoot platform be constructed to be more compressible near the inner edge of the shoe than the outer edge, but limitation 10.4 eliminates the requirement for the forefoot platform material to have a “gradient compression factor.” Accordingly, see limitation 1.4 above, describing Umezawa’s disclosure of a golf shoe having a

midsole with a forefoot platform made up of a low elastic part and a high elastic part.

Ex. 1002, ¶ 119.

ix. Claims 11-15 and 17

The limitations of claims 11-15 and 17 are similar to those in claims 2-5, 7 and 9, discussed above, and are therefore invalid for the same reasons. Ex. 1002, ¶ 120.

H. Ground 5 - Claims 1-5, 7, 9-15, 17 are Obvious Based on Norton

A POSITA would have found claims 1-5, 7, 9-15, and 17 obvious based on Norton. Ex. 1002, ¶ 121.

i. Claim 1

Norton teaches and/or suggests all limitations of independent claim 1.

1. [1.0] An athletic shoe comprises:

To the extent the preamble is deemed limiting, Norton teaches and/or suggests athletic shoes. Ex. 1007, Abstract (“sports shoe”); Ex. 1002, IX.E.a.

2. [1.1] an upper section; and

Norton teaches and/or suggests athletic shoes having an upper section:

[T]he invention relates to an article of footwear including an upper and a sole including a sole element manufactured in accordance with the preceding methods.

Ex. 1007, 4:59-62; Ex. 1002, IX.E.b.

3. [1.2] a sole section coupled to the upper section, wherein the sole section includes:

Norton teaches and/or suggests athletic shoes having a sole section coupled to the upper section. Ex. 1002, IX.E.c; ¶ 122.

[T]he invention relates to an article of footwear including an upper and a sole including a sole element manufactured in accordance with the preceding methods.

Ex. 1007, 4:59-62. A POSITA would understand an upper coupled to the sole section to be necessarily present in the disclosed athletic shoes. Ex. 1002, ¶ 123.

4. [1.3] a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and

Norton teaches and/or suggests a sole element with a consistent thickness throughout, including in the heel section, as shown in Figs. 4A, 4B.

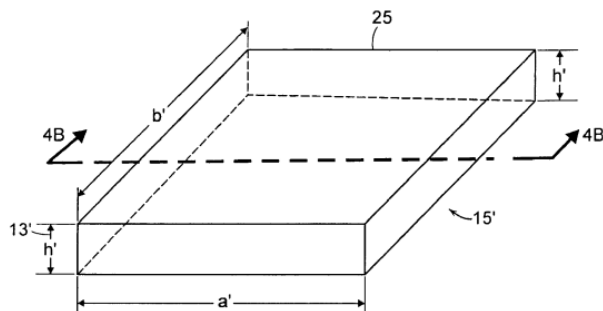


FIG. 4A

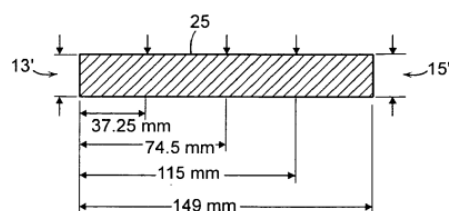


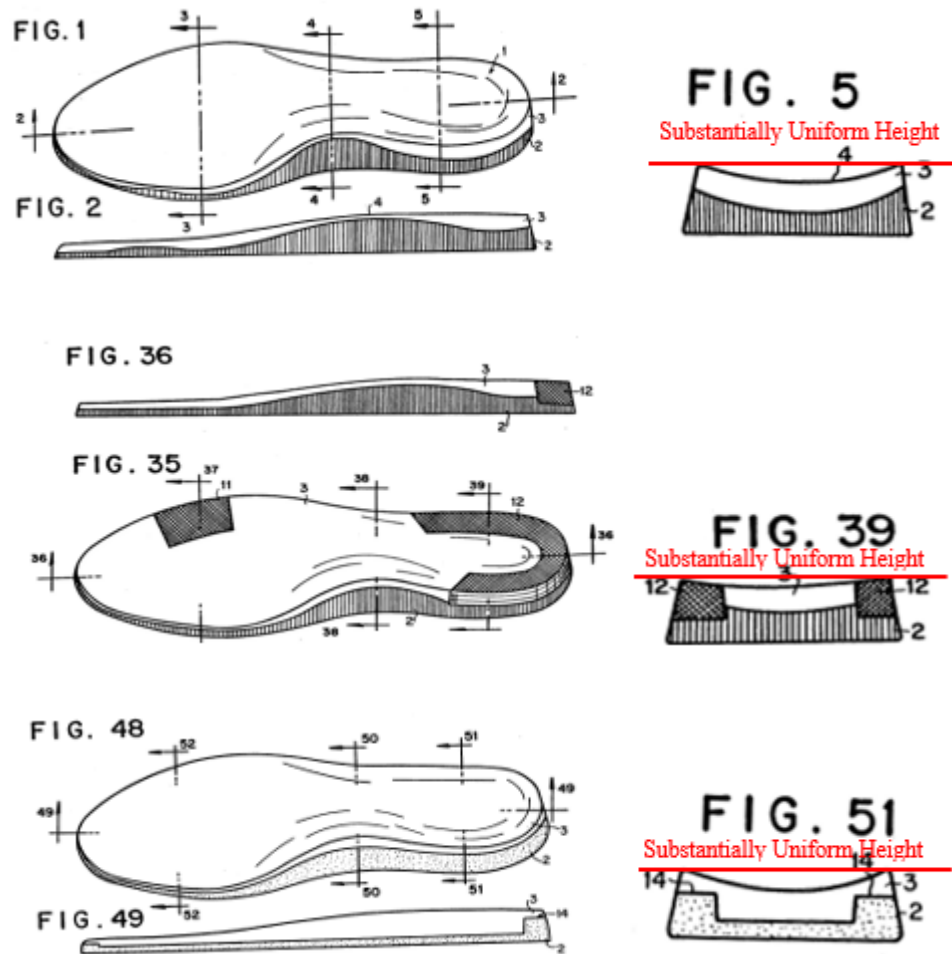
FIG. 4B

Ex. 1007, Figs. 4A, 4B.

“As depicted in FIG. 4A, the sole element 25 has a width a' of about 149 mm, a length b' of about 250 mm and a constant height h' of about 13 mm. FIG. 4B shows again a vertical section through the finished sole element 25 in accordance with the invention.” *Id.*, 7:39-43; Ex. 1002, IX.E.d.

Norton also teaches that the inventive sole element may only be used in parts of the forefoot (*id.*, 5:65-67) and a POSITA would understand that a typical athletic shoe has a heel platform that is consistent in height throughout. Ex. 1002, ¶¶ 55-61, 124. This, in combination with Norton’s disclosure of an insole having a consistent-thickness heel section would lead a POSITA to conclude that Norton’s heel platform has a substantially uniform height from the inner edge to the outer edge. *Id.*, ¶ 124.

In addition, Giese (incorporated by reference into Norton) discloses several shoe embodiments wherein the heel platform is substantially uniform in height from its inner edge to its outer edge. Ex. 1010, Figs. 1-5, 36-39, 48-51; 7:16-18; Ex. 1002, IX.E.d.

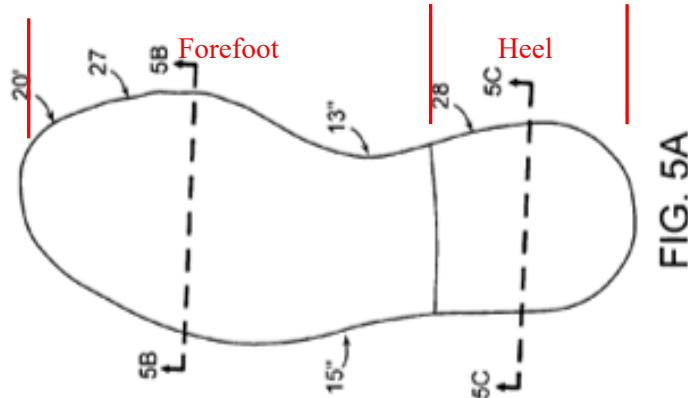


Giese also acknowledges that, “historically, shoe bottoms [] consisted primarily of flat surfaces on both their top and bottom.” *Id.*, 1:10-27.

5. [1.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the

athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second level of compression is greater than the first level of compression.

Norton teaches and/or suggests a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor.



Ex. 1007, Fig. 5A.

Norton discloses sole elements for sports shoes with a lateral density variation made up of a material that is “pressure forming into the desired density distribution,” as shown in Figs. 3B-4B. Ex. 1007, 3:14-15; 3:33-56; Ex. 1002, IX.E.e.

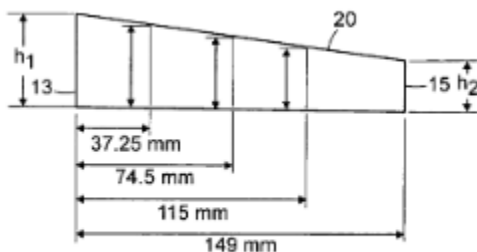


FIG. 3B

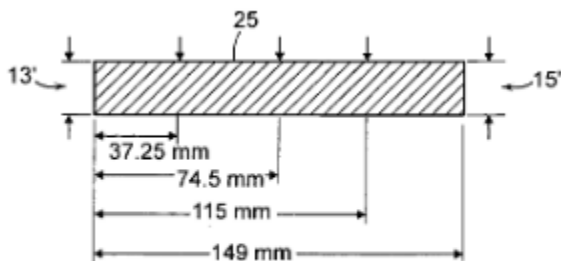


FIG. 4B

The locally varying hardness of the sole unit 25 can be explained by the surplus of material on the left side 13, which is compressed more than the material on the right side 15 during the final forming step in such a way that a continuously varying density distribution is obtained in the sole unit 25. The resulting density, in turn, influences the hardness and therefore the elasticity of the sole unit 25.

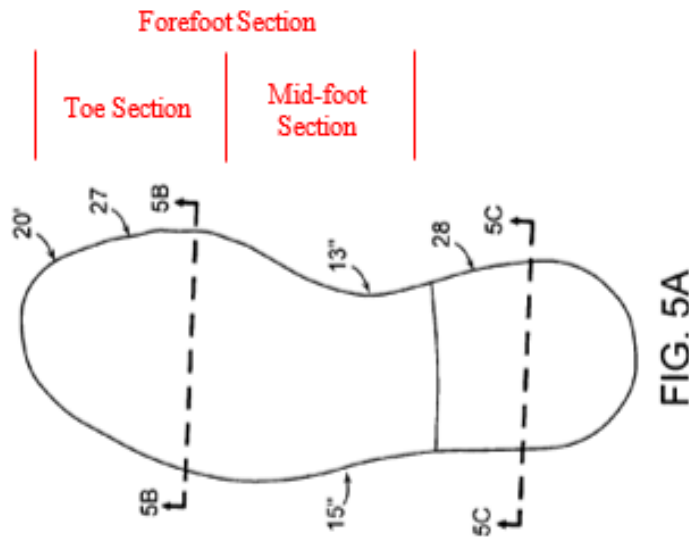
Ex. 1007, 8:12-18.

Norton also explains that the “[d]ensity can increase gradually from a lateral side of the sole element to a medial side of the sole element” or vice versa. *Id.*, 4:7-13.

A POSITA would understand that the varied density across the forefoot platform disclosed in Norton would cause the sole elements to compress more near their inner edge than near their outer edge when the weight of an athlete is applied to the shoe. Ex. 1002, ¶ 125. To the extent needed, it also would have been obvious to a POSITA to incorporate the heel designs disclosed in Giese that have a substantially uniform height into the shoes disclosed in Norton that have varying density forefoots without altering the forefoot, or the rest of the shoe’s, design. *Id.*, ¶ 126.

- ii. **Claim 2** - The athletic shoe of claim 1, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.

Norton teaches and/or suggests a forefoot section comprising a midfoot section and a toe section. Ex. 1002, IX.E.f.



Ex. 1007, Fig. 5A.

- iii. **Claim 3** - The athletic shoe of claim 1, wherein the second material comprises: a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.

See limitation 1.4 above, describing the sole elements having a gradient compression factor disclosed in Norton. Ex. 1002, ¶ 127.

- iv. **Claim 4** - The athletic shoe of claim 3, wherein the resilient material comprises one or more of: a rubber, a gel, a foam, a synthetic material.

Norton disclose a midsole that comprises a synthetic material and/or a foam.

Ex. 1002, IX.E.h.

The sole element includes a homogeneous polymer material including a portion having a locally varying density. The homogeneous polymer material may include ethylene vinyl acetate.

Ex. 1007, 3:59-61; *see also* 6:56-60 (disclosing EVA and “other foamed materials” such as PU).

- v. Claim 5 - The athletic shoe of claim 1, wherein the second material comprises: a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.**

See limitation 1.4 above, describing the sole elements configured to provide a shape of the forefoot platform and having a gradient compression factor disclosed in Norton. Ex. 1002, ¶ 128. It would have been an obvious design choice to use either one or a plurality of materials to achieve the benefits of the gradient compression factor, as disclosed in both Norton and in Talarico ‘911, incorporated by reference in Norton. *Id.*

- vi. Claim 7 - The athletic shoe of claim 1, wherein the heel platform further comprises: the first material having a first compression factor.**

See limitation 1.3 above, describing Norton’s disclosure of a heel platform that is made of a material, which inherently has some compression factor. Ex. 1002, ¶ 129.

vii. Claim 9 - The athletic shoe of claim 1, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.

See limitation 1.2 above, describing Norton's disclosure of athletic shoes having a sole section that includes an insole, midsole and/or an outsole. Ex. 1002, ¶ 130.

viii. Claim 10

Norton teaches and/or suggests all limitations of independent claim 10. Limitations [10.0] – [10.3] are similar to limitations [1.0] – [1.3]. See the corresponding discussions above for limitations [1.0] – [1.3], respectively. Ex. 1002, ¶ 131.

1. [10.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed to have a first level of compression proximal to the outer edge of the shoe and a second level of compression proximal to an inner edge of the shoe, wherein the second level of compression is greater than the first level of compression.

Limitation 10.4 is similar to limitation 1.4 in that both require the forefoot platform be constructed to be more compressible near the inner edge of the shoe than the outer edge, but limitation 10.4 eliminates the requirement for the forefoot platform material to have a “gradient compression factor.” Accordingly, see limitation 1.4 above, describing Norton's disclosure of athletic shoes having sole elements with forefoot platforms that are more compressible near their inner edge than their outer edge. Ex. 1002, ¶ 132.

ix. Claims 11-15 and 17

The limitations of claims 11-15 and 17 are similar to those in claims 2-5, 7 and 9, discussed above, and are therefore invalid for the same reasons. Ex. 1002, ¶ 133.

I. Ground 6 - Claims 1-5, 7, 9-15, 17 are Obvious Based on Talarico '911

A POSITA would have found claims 1-5, 7, 9-15, and 17 obvious based on Talarico '911. Ex. 1002, ¶ 134. Notably, Patent Owner did not refute the Examiner's finding that Talarico '911 teaches all elements of claims 1-5, 7 and 9 of the '456 patent (which were present in the pending claims of the '768 patent application) during prosecution of the related '768 patent. Ex. 1011, pp. 77-81, 210-11.

i. Claim 1

Talarico '911 teaches and/or suggests all limitations of independent claim 1.

1. [1.0] An athletic shoe comprises:

To the extent the preamble is deemed limiting, Talarico '911 teaches and/or suggests a running shoe. Ex. 1008, 20:38; Ex. 1002, ¶ 135.

2. [1.1] an upper section; and

Talarico '911 teaches and/or suggests athletic shoes having an upper section:

Outsoles may have gripping surfaces in which case the compensations of the present invention are employed to the top portion of the outsole closest to the conventional upper portion of an article

of footwear; rather than interfering in any way with the outer bottom and gripping surfaces of the outersole itself.

Ex. 1008, 20:52-57; Ex. 1002, IX.F.b.

3. [1.2] a sole section coupled to the upper section, wherein the sole section includes:

Talarico '911 teaches and/or suggests athletic shoes having a sole section coupled to the upper section. Ex. 1002, IX.F.c, ¶ 136.

Innersoles, midsoles, and/or outsoles may each become an integral part of the present invention either independently or in combinations thereof; depending on the particular type of footwear and the particular fabrication process involved.

Ex. 1008, 20:47-51.

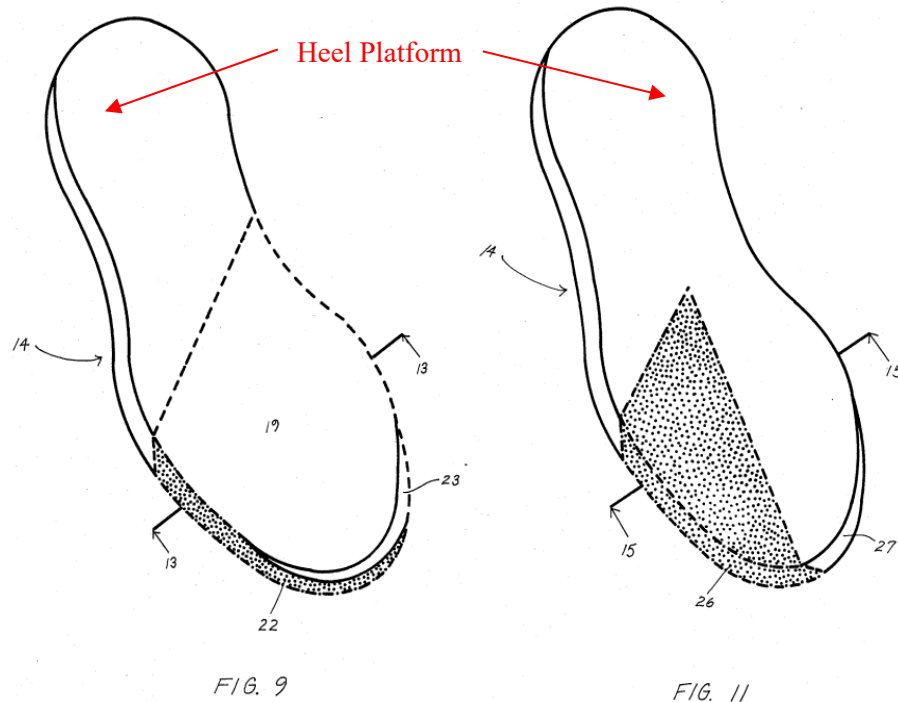
Outsoles may have gripping surfaces in which case the compensations of the present invention are employed to the top portion of the outersole closest to the conventional upper portion of an article of footwear; rather than interfering in any way with the outer bottom and gripping surfaces of the outersole itself.

Id., 20:52-57. A POSITA would understand an upper coupled to the sole section to be necessarily present in the disclosed athletic shoes. Ex. 1002, ¶ 137.

4. [1.3] a heel platform having a first height that is substantial uniform from an inner edge of the sole section to an outer edge of the sole section, wherein the heel platform is constructed of a first material; and

Talarico '911's discloses that "the rearfoot portion [of the sole] is of constant thickness across the width thereof." Ex. 1008, Claim 1, 21:22-23. Talarico '911

also discloses a midsole having a consistent thickness throughout. Ex. 1008, 12:1-3, Figs. 8-15.

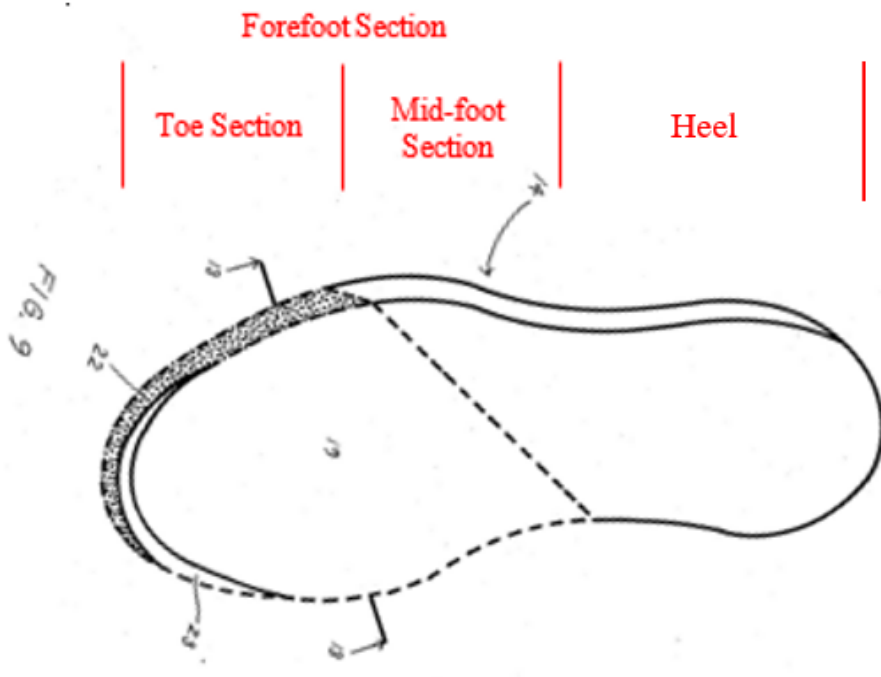


Talarico '911 also describes that its invention was directed only to the forefoot portions of the footwear (*id.*, 6:56-62), and a POSITA would understand that a typical athletic shoe has a heel platform that is consistent in height throughout. Ex. 1002, ¶¶ 55-61, 138.

5. [1.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor, wherein, when the athletic shoe is worn by an athlete and weight of the athlete is applied to the athlete shoe, the second material compresses to a first level near an outer edge of the sole section and the second material compresses to a second level near an inner edge of the sole section, wherein the second

level of compression is greater than the first level of compression.

Talarico '911 teaches and/or suggests a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed of a second material having a gradient compression factor. Talarico '911 discloses a midsole with a forefoot platform made up of a “second material” comprised of different compressibilities across the width of a shoe. Ex. 1008, Abstract; Ex. 1002, IX.F.e.



For example, Talarico '911 explains:

The present invention is intended for any and all footwear wherein dual-density or dual-compressibility materials or combinations of different materials may be incorporated into either the midsole, outsole, or innersole construction of the footwear.

Ex. 1008, 1:11-18. Talarico '911 discloses embodiments in which a dual-density forefoot can be provided. For example, the two materials can be provided side-by-side, as shown in Figs. 11 and 15. *See also id.*, 15:15-22. 20:1-13.

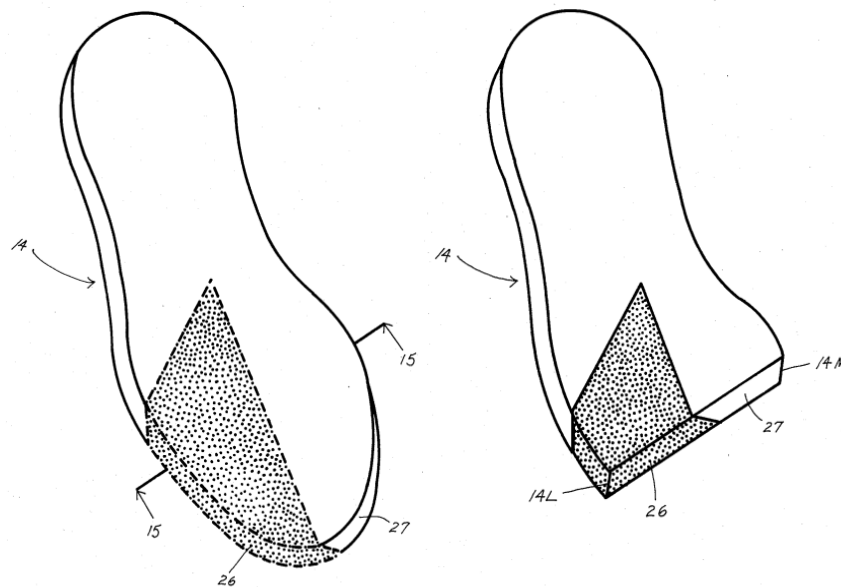


FIG. 11

FIG. 15

Alternatively, the forefoot can include a 45-degree meshing of the two materials, which allows for “a more even and gradual alteration of the weight-bearing gravitational forces as they are delivered and directed across the forefoot section of the footwear during the midstance and propulsive phases of gait,” as depicted in Figs. 9 and 13. *Id.*, 12:41-47, *see also id.*, 11:42-55; Ex. 1002, IX.F.e.

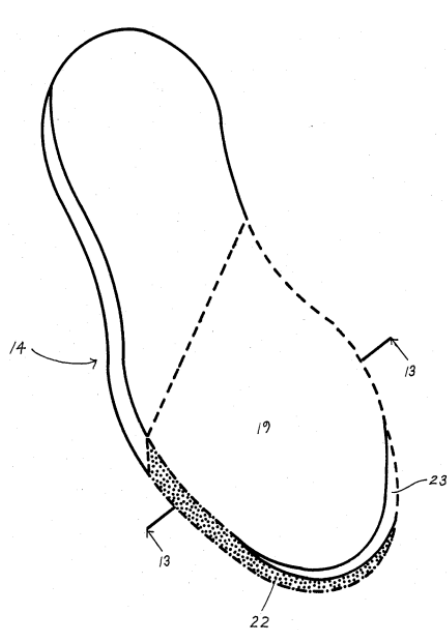


FIG. 9

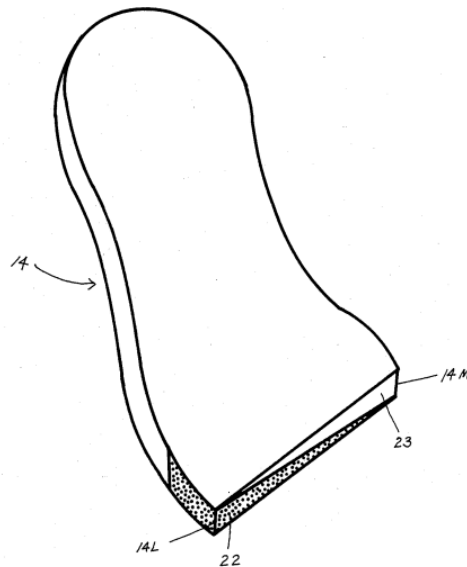


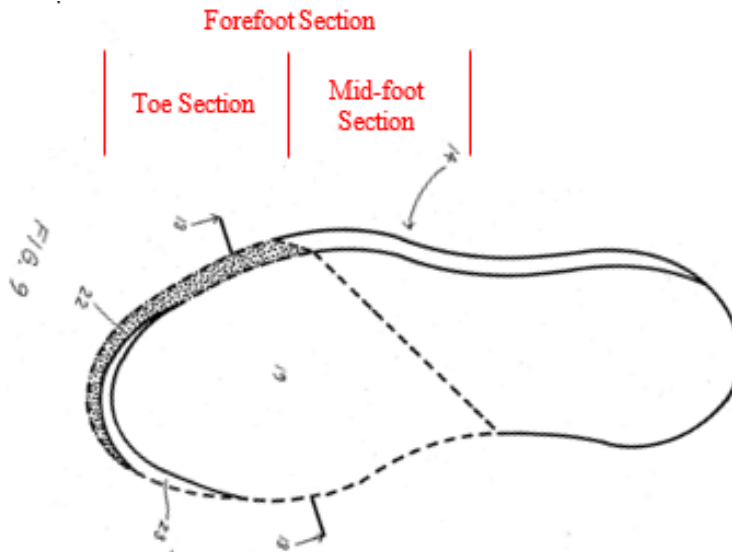
FIG. 13

In both embodiments, “the material employed on the lateral half of the forefoot is denser than the material used on the medial half of the forefoot.” Ex. 1008, 11:64-68; 18:21-30.

Talarico ‘911 teaches that the varied density across the forefoot platform would cause the sole elements to compress more near their inner edge than near their outer edge when the weight of an athlete is applied to the shoe. *See, e.g. id.*, Abstract (“the sole effectively slopes at an angle upwardly from the lateral aspect to the medial aspect when weight-bearing forces are exerted on the forefoot”), 19:50-63; Ex. 1002, ¶ 139. And in the related ’768 patent’s Notice of Allowance, the Examiner found that Talarico ’911 “does teach forming a forefoot platform from a material having a gradient compression factor to provide a means for tilting the foot of a wearer...” Ex. 1011, p. 15.

- ii. **Claim 2** - The athletic shoe of claim 1, wherein the forefoot section comprises: a mid-foot section; and a toe section proximal to the mid-foot section.

Talarico '911's teaches and/or suggests a forefoot section comprising a midfoot section and a toe section. Ex. 1002, IX.F.f.



Ex. 1008, Fig. 9.

- iii. **Claim 3** - The athletic shoe of claim 1, wherein the second material comprises: a resilient material of varying density to provide a compressible gradient to provide the gradient compression factor.

See limitation 1.4 above, describing the sole elements having a gradient compression factor disclosed in Talarico '911. Ex. 1002, ¶ 140.

- iv. **Claim 4** - The athletic shoe of claim 3, wherein the resilient material comprises one or more of: a rubber, a gel, a foam, a synthetic material.

Talarico '911 teaches and/or suggests a midsole that comprises a synthetic material. Ex. 1002, IX.F.h.

In these examples of a running shoe midsole, usually ethyl vinyl acetate (EVA) or polyurethane are the materials commonly utilized in their construction.

Ex. 1008, 18:45-47.

- v. Claim 5 - The athletic shoe of claim 1, wherein the second material comprises: a plurality of material configured to provide a shape of the forefoot platform and to provide the gradient compression factor.**

See limitation 1.4 above, describing the sole elements configured to provide a shape of the forefoot platform and having a gradient compression factor disclosed in Talarico '911. Ex. 1002, ¶ 141.

- vi. Claim 7 - The athletic shoe of claim 1, wherein the heel platform further comprises: the first material having a first compression factor.**

See limitation 1.3 above, describing Talarico '911's disclosure of a heel platform that is made of a material, which inherently has some compression factor.

Ex. 1002, ¶ 142.

- vii. Claim 9 - The athletic shoe of claim 1, wherein the sole section comprises one or more of: an insole; a mid-sole; and an out-sole.**

See limitation 1.2 above, describing Talarico '911's disclosure of athletic shoes having a sole section that includes an insole, midsole and/or an outsole. Ex. 1002, ¶ 143.

viii. Claim 10

Talarico '911 teaches and/or suggests all limitations of independent claim 10. Limitations [10.0] – [10.3] are similar to limitations [1.0] – [1.3]. See the

corresponding discussions above for limitations [1.0] – [1.3], respectively. Ex. 1002, ¶ 144.

1. [10.4] a forefoot platform juxtaposed to the heel platform, wherein the forefoot platform is constructed to have a first level of compression proximal to the outer edge of the shoe and a second level of compression proximal to an inner edge of the shoe, wherein the second level of compression is greater than the first level of compression.

Limitation 10.4 is similar to limitation 1.4 in that both require the forefoot platform be constructed to be more compressible near the inner edge of the shoe than the outer edge, but limitation 10.4 eliminates the requirement for the forefoot platform material to have a “gradient compression factor.” Accordingly, see limitation 1.4 above, describing Talarico ‘911’s disclosure of athletic shoes having sole elements with forefoot platforms that are more compressible near their inner edge than their outer edge. Ex. 1002, ¶ 145.

ix. Claims 11-15 and 17

The limitations of claims 11-15 and 17 are similar to those in claims 2-5, 7 and 9, discussed above, and are therefore invalid for the same reasons. Ex. 1002, ¶ 146.

VIII. THE BOARD SHOULD INSTITUTE UNDER 35 U.S.C. § 314

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) weighs against exercising discretion to deny this Petition. Specifically, factors 1-4 and 6 weigh against denial because in the corresponding

litigation, the case is in its early stages and few resources have been invested by the Parties or the Court. Discovery has only recently begun, and claim construction briefing is not scheduled to start until August, 2024, and continue well after the Institution Decision for this Petition. Trial is not currently scheduled until March 2025, and Petitioner plans to seek a stay of the litigation in view of this IPR, and the merits of the Petition are particularly strong, as demonstrated by the above Grounds and declaration in support. Additionally, the *Gen. Plastic Indus. Co. v. Canon Kabushiki Kaisha* factors weigh against discretionary denial because there is no prior petition filed on the challenged claims of the ‘456 patent. *Id.*, IPR2016-01357, Paper 19, at 16-18 (P.T.A.B. Sept. 6, 2017).

IX. CONCLUSION

For the reasons stated above, Petitioner submits that claims 1-5, 7, 9-15 and 17 of the ‘456 patent are unpatentable. Accordingly, Petitioner requests institution of *Inter Partes* Review.

DATED: March 4, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing petition for *inter partes* review, together with all exhibits and other documents filed therewith, was served by Federal Express on March 4, 2024, on the Patent Owner's counsel of record at the U.S. Patent and Trademark Office having the following address:

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the foregoing petition for *inter partes* review contains 13,896 words according to the word processing program used to prepare it.

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