

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PUMA NORTH AMERICA, INC.,

Petitioner,

v.

NIKE, INC.,

Patent Owner.

U.S. Patent No. 9,078,488

Issue Date: July 14, 2015

Title: ARTICLE OF FOOTWEAR INCORPORATING
A LENTICULAR KNIT STRUCTURE

Case Number: Unassigned

PETITION FOR *INTER PARTES* REVIEW

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LIST OF EXHIBITS

Number	Description
1001	U.S. Patent No. 9,078,488 (the “’488 Patent”)
1002	U.S. Patent No. 10,070,679 (the “’679 Patent”)
1003	File History for the ’488 Patent and the ’679 Patent
1004	U.S. Patent Publication No. 2014/0310984 (“Tamm”)
1005	Certified Translation of Japanese Patent No. 10298847 (“Shindo”)
1006	excerpts from NIKE’s Supplemental LR 16.6(d)(1) Preliminary Patent-Related Disclosures, <i>NIKE, Inc. v. PUMA North America, Inc.</i> , Case No. 1:18-cv-10876 (D. Mass. Jan. 10, 2019) (“Infringement Contentions”)
1007	Declaration of Michael Steszyn
1008	CV of Michael Steszyn
1009	Shindo BT-LR2 Product Sheet
1010	Japanese Patent No. 10298847 (“Shindo”)
1111	Certificate of Translation of Japanese Patent No. 10298847 (“Shindo”)

I. INTRODUCTION

Pursuant to 35 U.S.C. §§ 311–19 and 37 C.F.R. § 42.100 *et seq.*, Petitioner PUMA North America, Inc. (“Petitioner”) respectfully requests that the Board initiate *inter partes* review of claims 1–5, 10, and 16–17 (collectively, “the Challenged Claims”) of U.S. Patent No. 9,078,488 (Ex. 1001, the “’488 Patent”), which purports to be assigned to NIKE, Inc. (“Patent Owner”). There is a reasonable likelihood that Petitioner will prevail with respect to at least one of the claims challenged in this Petition.

II. BACKGROUND

A. Overview of the Technology

According to the ’488 Patent, conventional articles of footwear generally include two primary elements: an upper and a sole structure. Ex. 1001 at 1:26–27.

The ’488 Patent acknowledges at “[a] variety of material elements (e.g., textiles, polymer foam, polymer sheets, leather, synthetic leather) are conventionally used in manufacturing the upper.” *Id.* at 1:62–63; *see also id.* at 7:32–35. Conventionally utilized textile components are frequently of knit construction. Declaration of Michael Steszyn (Ex. 1007) at ¶ 33. Moreover, the ’488 Patent teaches that it was known in the prior art to minimize the number of components in footwear uppers in order to decrease waste “while increasing the manufacturing efficiency and recyclability of the upper.” Ex. 1001 at 2:15–20.

The '488 Patent further acknowledges the existence of prior “lenticular printing techniques” that utilize “lenses to cause a shift in the visible image or pattern when viewed from different viewing angles.” *Id.* at 8:45–50. The '488 Patent asserts that “[i]n an exemplary embodiment, color-shifting properties may be provided to an article of footwear using a visual effect *similar to or inspired by lenticular printing techniques.*” *Id.* at 8:43–45 (emphasis added). It is common in footwear design to use lenticular-style techniques for such optical effects. Ex. 1007 at ¶ 34.

B. The '488 Patent Specification

The '488 Patent claims “a knitted component” with color-shifting properties generated by disposing differently colored yarns on opposite sides of lenticular knit structures (e.g., raised loops), a method of manufacturing said component, and an article of footwear incorporating that such a component in its upper. Ex. 1001 at Abstract, claims 1–5, 10, 16–17; *see also id.* at Fig. 14 (reproduced below).

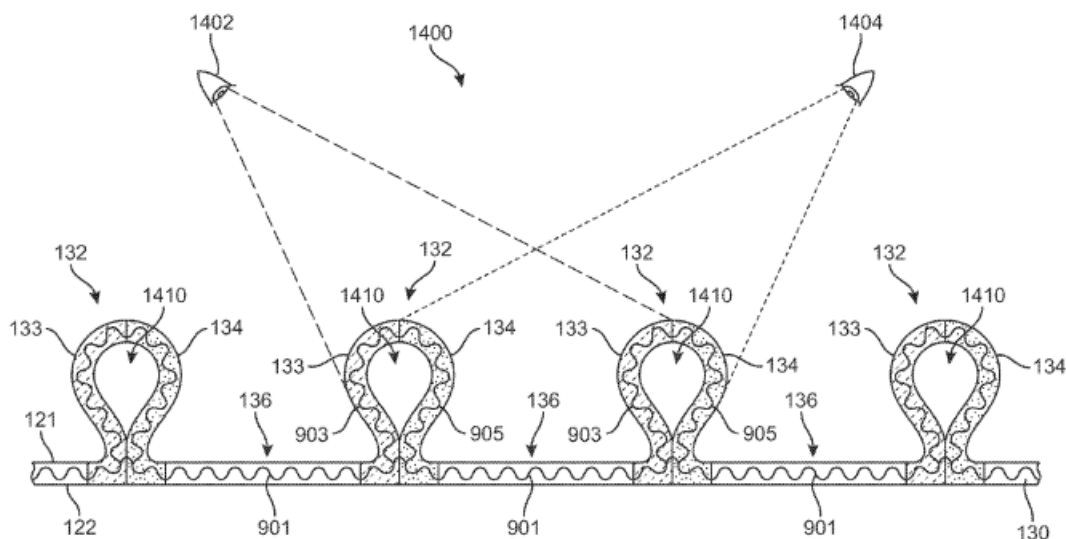


FIG. 14

To that end, the '488 Patent describes and claims that the knitted component includes “[a] lenticular knit structure [that] is configured to present at least two different colors to a viewer when the lenticular knit structure is viewed from different viewing angles.” *Id.* at 8:53–56. “With this configuration, the lenticular knit structure may alter the visual color appearance of the knitted component as the knitted component and/or the viewer moves relative to the article of footwear.” *Id.* at 8:61–65.

The '488 Patent describes that the “lenticular knit structure 132 may be in the form of a tubular rib structure ... extending away from the surface of the knitted component 130.” *Id.* at 9:6–9. “[A] base portion 136 of knitted component 130 is disposed between lenticular knit structures 132.” *Id.* at 9:19–21. “[A] first portions 133 of lenticular knit structure 132 [is] disposed on one side of the tubular rib structure [and] may be knit using a first yarn” while “a second portion 134 of

lenticular knit structure 132 [is] disposed on the opposite side of the tubular structure [and] may be knit using a second yarn that is different from the first yarn.” *Id.* at 10:11–18.

“With this configuration, the color-shifting properties of knitted component 130 caused by lenticular knit structures 132 may vary as article 100 is viewed from different angles.” *Id.* at 10:34–37.

“[F]rom first viewing angle 500, first portion 133 of each lenticular knit structure 132 is aligned so as to be facing towards the viewer. With this orientation, the first yarn used to form first portion 133 of lenticular knit structure 132 is visible from first viewing angle 500, while the second yard used to form second portion 134 of lenticular knit structure 132 is disposed on the opposite side and shielded from being viewed from first viewing angle 500.

...

... From second viewing angle 600, article 100 presents knitted component 130 appearing to have a second color that is different from the first color appearing to the viewer from first viewing angle 500. [T]he second color is the same as the second yarn used to knit second portion 134 of lenticular knit structures 132. That is, from second viewing angle 600, second portion 134 of each lenticular knit structure 132 is aligned so as to be facing towards the viewer. With this orientation, the second

yarn used to form second portion 134 of lenticular knit structure 132 is visible from second viewing angle 600, while the first yarn used to form first portion 133 of lenticular knit structure 132 that was visible from first viewing angle 500 is now disposed on the opposite side and shielded from being viewed from second viewing angle 600.”

Id. at 11:26–60.

C. The '488 Patent Prosecution History

The application for the '488 Patent was filed on November 7, 2014, '488 Patent File History (Ex. 1003 at 218), and claims priority to two provisional applications filed on September 30, 2014, *id.* at 218–23. Because these filings were after March 16, 2013, the first inventor to file provisions of the Leahy-Smith America Invents Act (AIA) apply. *See* 35 U.S.C. § 100.

The application for the '488 Patent was not the subject of extensive examination during its prosecution history. Rather, the '488 Patent issued without receiving any claim rejections. *Id.* at 762, 799.

D. '488 Patent Claims

The '488 Patent recited 20 claims. Among them are Challenged Claims 1–5, 10, and 16–17. Claims 1, 10 and 16 are independent. Claims 4–5 depend from claim 1. Claim 17 depends from claim 16. The Challenged Claims are as follows:

1. An article of footwear including [a] an upper and a sole structure attached to the upper, [b] the upper incorporating a knitted component formed of unitary knit construction, the knitted component comprising:

[c] at least one lenticular knit structure including a first portion and a second portion disposed on opposite sides of the lenticular knit structure; and

[d] a base portion disposed adjacent to the at least one lenticular knit structure;

[e] wherein the at least one lenticular knit structure extends away from the base portion on an exterior surface of the upper; and

[d] wherein the first portion of the at least one lenticular knit structure is associated with a first visual effect when the upper is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the upper is viewed from a second viewing angle that is different than the first viewing angle.

2. The article of footwear according to claim 1, wherein the first portion of the at least one lenticular knit structure is formed using a first yarn and the second portion of the at least one lenticular knit structure is formed using a second yarn, the first yarn and the second yarn having different characteristics.

3. The article of footwear according to claim 2, wherein the first yarn and the second yarn are one or more of different yarn types, different colors, different textures, and different deniers

4. The article of footwear according to claim 2, wherein the first yarn substantially generates the first visual effect when the upper is viewed from the first viewing angle and the second yarn substantially generates the second visual effect when the upper is viewed from the second viewing angle.

5. The article of footwear according to claim 1, wherein the knitted component further comprises a plurality of lenticular knit structures.

10. A knitted component for incorporating into an article, the knitted component comprising:

- [a] a plurality of lenticular knit structures,
- [b] each of the lenticular knit structures including a first portion formed using a first yarn on one side of the lenticular knit structure and a second portion formed using a second yarn disposed on an opposite side of the lenticular knit structure, [c] the first yarn and the second yarn being different; and
- [d] a base portion disposed between adjacent lenticular knit structures;

- [e] wherein the first portion, the second portion, and the base portion are formed of unitary knit construction with the knitted component; and
- [f] wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle.

16. A method of manufacturing a knitted component for incorporating into an article, the method comprising:

- [a] knitting a base portion of the knitted component;
- [b] knitting a first portion of a lenticular knit structure using a first yarn;
- [c] knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn;
- [d] the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction; and

[e] wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle.

17. The method according to claim 16, wherein the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process.

III. LEVEL OF ORDINARY SKILL

As of the earliest claimed priority date of the '488 Patent — September 30, 2014 — a person having ordinary skill in the art relevant to the patent would have had at least three years of experience in knitted footwear development in an industrial context. *See* Ex. 1007 at ¶¶ 40-45.

As explained by Mr. Steszyn, a person of ordinary skill in the art would have a broad understanding of shoemaking in general, including aspects such as merchandising, design, product development, commercialization, costing, and/or manufacturing, because all aspects are so interdependent on each other. *Id.* A person of ordinary skill in the art would also have an understanding of the product cycle for the process of designing, developing, and bringing a new product to

market. *Id.* He or she would also understand that there are some key review milestones where upper material designs are reviewed and considered, such as textiles, leathers, synthetics, or other types of materials used for upper construction. *Id.* A person of ordinary skill in the art would have some understanding and knowledge of the available and varied ranges of typical construction methods within a product cycle. *Id.* In addition, a person of ordinary skill in the art would have a basic knowledge of the functional requirements of footwear and a comprehensive understanding of the range of material choices, as well as construction techniques and processes used to create the various parts of a shoe and to assemble them in an effective manner. *Id.* A person of ordinary skill in the art would also explore any aesthetic, cost reduction, production efficiency or recycling opportunities, suggested by the knit construction. *Id.*

IV. CLAIM CONSTRUCTION

“In an *inter partes* review proceeding, a claim of a patent ... shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Therefore, the claims of the ’488 Patent subject to *inter partes* review are construed pursuant to *Phillips v. AWH Corp.*, 415

F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (holding that claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record). Petitioner does not believe that any claim terms other than those addressed below need to be construed for the purposes of the requested *inter partes* review.

A. Lenticular Knit Structure

Each challenged independent claim of the '488 Patent recites a “lenticular knit structure.” As explained below, the term “lenticular knit structure” should be construed as “a knit structure configured to present at least two different colors to a viewer when viewed from different viewing angles.”

The '488 Patent explains that “[a] lenticular knit structure is configured to present at least two different colors to a viewer when the lenticular knit structure is viewed from different angles.” Ex. 1001 at 8:53–56. This can be used to provide a knitted component “with color-shifting properties.” *Id.* at 8:51–53. The '488 Patent explains how this may work as follows:

For example, when viewed from a first viewing angle, a lenticular knit structure may cause the knitted component to appear a first color, but when viewed from a second viewing angle that is different than the first viewing angle, the lenticular knit structure causes the knitted

component to appear a second color that is different from the first color. With this configuration, the lenticular knit structure may alter the visual color appearance of the knitted component as the knitted component and/or the viewer moves relative to the article of footwear. The change in the viewing angle associated with such movement of the knitted component and/or the viewer causes the lenticular knit structure to present different colors to the viewer, thereby generating color-shifting properties to the knitted component and the article of footwear.

Id. at 8:56–9:2.

The '488 Patent explains that this creates “a visual effect similar to or inspired by lenticular printing techniques,” which “include[] the use of lenses to cause a shift in the visible image or pattern when viewed from different viewing angles.” *Id.* at 8:43–48.

The '488 Patent's definition of “lenticular knit structure” is in line with how the term is used in the textile and footwear manufacturing industry. As explained by Mr. Steszyn, “lenticular” is commonly used in the textile and footwear manufacturing industry to refer to a perspective-dependent visual effect that is analogous to the type of visual effect generated by lenticular printing. Ex. 1007 at ¶ 49. This can be achieved in knitting through the use of structures extending from a base to present one visual effect on the side facing an observer, and an additional

visual effect when viewed from an opposing angle across the plane of the structure.

Id.

Accordingly, based on the specification of the '488 Patent, a person of ordinary skill in the art would understand “lenticular knit structure” to mean “a knit structure configured to present at least two different colors to a viewer when viewed from different viewing angles.” *Id.* at ¶¶ 46-49.

B. Unitary Knit Construction

Independent claims 1 and 10, and dependent claim 17 of the '488 Patent recite a knit component formed of “unitary knit construction.” The '488 Patent explicitly defines a knitted component “as being formed of ‘unitary knit construction’ when formed as a one-piece element through a knitting process.” *Id.* at 7:63–8:1. The '488 Patent goes on to explain, “[t]hat is, the knitting process substantially forms the various features and structures of [the] knitted component [] without the need for additional manufacturing steps or processes. *Id.* at 8:1–4. Accordingly, “unitary knit construction” should be construed as “substantial construction of a one-piece element through a knitting process without the need for additional manufacturing steps or processes.”

V. STATEMENT OF RELIEF REQUESTED (37 C.F.R. § 42.22(A)(1)) AND IDENTIFICATION OF CHALLENGE (37 C.F.R. § 42.104(B))

Petitioner requests that *inter partes* review of the Challenged Claims be instituted because this Petition establishes a reasonable likelihood that the

Petitioner will prevail with respect to at least one claim, and that the Board cancel the Challenged Claims as unpatentable. This Petition is based on the following grounds:

Ground	Claim(s)	Statute	Patent(s)/Printed Publication(s)
1	10, 16–17	§ 102	Japanese Patent No. 10298847 (“Shindo”) (Exs. 1005, 1010–11, “Shindo”) ¹
2	1–5, 16–17	§ 103	Shindo in view of U.S. Patent Publication No. 2014/0310984 (Ex. 1004, “Tamm”) in view of the knowledge of a person of ordinary skill in the art

VI. STATEMENT OF REASONS FOR RELIEF REQUESTED (37 C.F.R. § 42.22(A)(2))

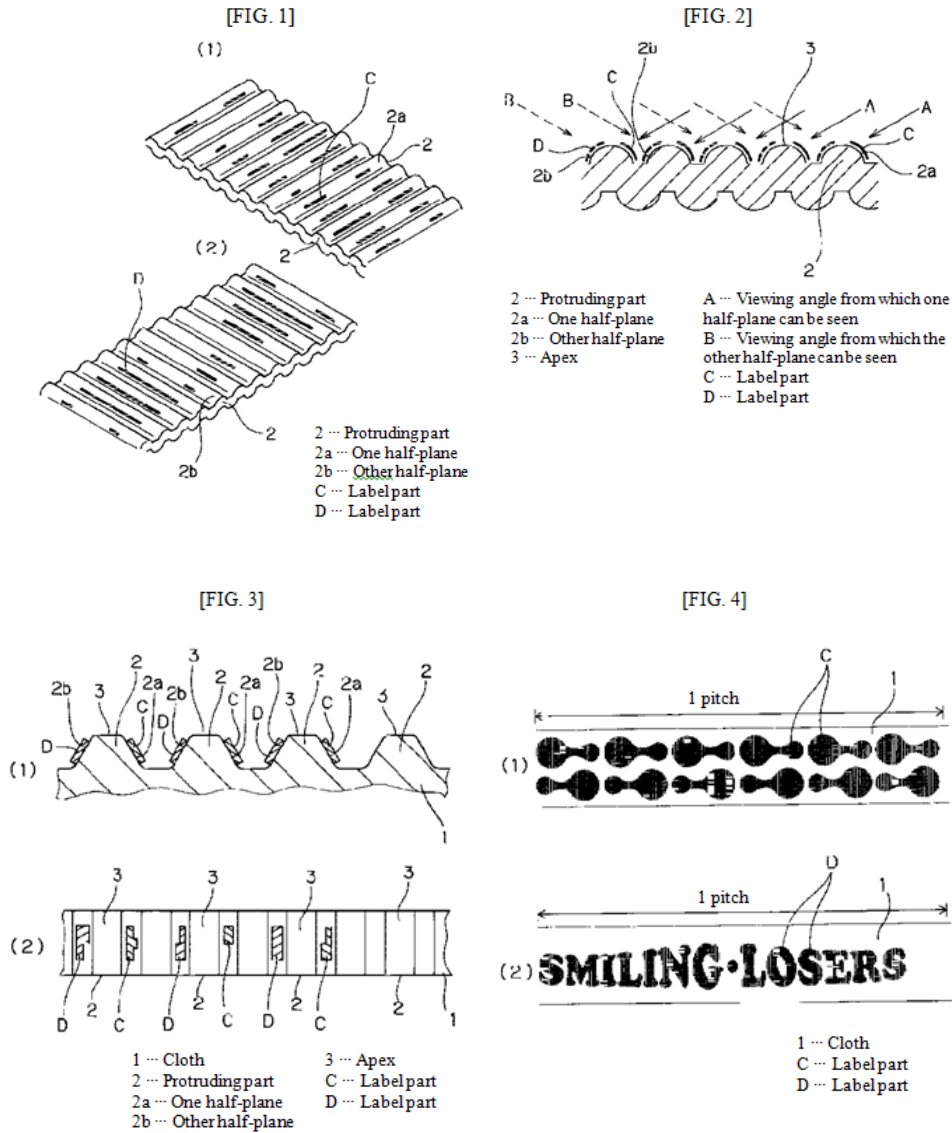
A. Overview of the Cited Prior Art

1. Shindo

The application for Shindo was filed on April 21, 1997 and Shindo published on November 10, 1998. Ex. 1005 at cover. Accordingly, Shindo is prior art to the ’048 Patent under 35 U.S.C. § 102(a)(1) and (2). Shindo was not considered during the prosecution of the application that issued as the ’488 Patent. Ex. 1001.

¹ Ex. 1005 is a certified translation of Shindo. Ex. 1010 is an original Japanese copy of Shindo. Ex. 1011 is a certificate of translation.

Shindo discloses “a cloth made such that its labeling changes when viewed from the side of one half-plane of protruding parts formed on the cloth versus when viewed from the side of the other half-plane” Ex. 1005 at ¶ 1, Figs. 1–4 (reproduced below).

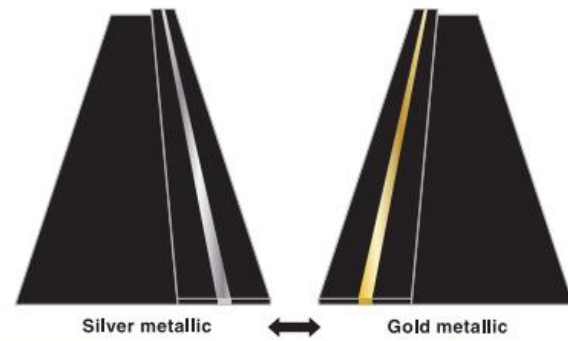


Shindo discloses that its claimed invention “may be widely used in various belt applications and in label applications for bags, *clothing, etc.* When the

viewing angle changes due to movement of the wearer's body, different labeling will become visible, making it possible to provide a broad range of highly varying products." *Id* at ¶ 11 (emphasis added).

Such "webbing" or "webbed tape" is commonly used in footwear along with woven labels, and a person of ordinary skill in the art would be aware of both their use and construction. Ex. 1007 at ¶ 54. Accents such as woven labels and webbed tape and laces are frequently used in footwear logos (quarter, tongue and heel), pull tabs (heel and tongue) and lacerings. Some uppers are made entirely from flat webbing, woven together to make a continuous textile. *Id.* at ¶ 54. Any innovation introduced by a knit webbing supplier will be noticed and adapted by a person of ordinary skill in the art of footwear design and development. *Id.* The Shindo SC Company, of which Tadashi Shindo is President and CEO, sells "dual color" or "illusion knit" products embodying the Shindo Patent in the United States. *See* Ex. 1009 (reproduced below).

VIEW POINT



Knit piping with metallic yarn. Color (Silver / Gold) changes depends on the viewing angle.
メタリック糸をニットパイピングに編み込んだパイピング。見る角度によって色(シルバー/ゴールド)が変わります。

4 COLOR SAMPLES



Shindo further discloses that the protruding parts formed on a cloth can be knit structures, as “the label parts may be integrated with the cloth through weaving or *knitting of different color yarn integrally into the cloth*, which can be easily incorporated into a cloth weaving program or knitting program, making the production easy and allowing very accurate label parts to be formed for each half-plane.” Ex. 1005 at ¶ 7 (emphasis added). Moreover, “each half-plane of the protruding parts” can be associated with a different effect, “including color labeling, different label content, etc., whereby the labeling that can be seen from one half-plane differs from the labeling that can be seen from the other half-plane.” *Id.* at ¶ 12.

Shindo explains that the “labels” it describes include, “for example, graphics, characters, symbols or other labeling [conventionally] applied to an elongated tape cloth,” such as “print coloring.” *Id.* at ¶ 2.

2. Tamm

The application for Tamm was filed on April 21, 2014 and Tamm published on October 23, 2014. Ex. 1004 at cover. Accordingly, Tamm is prior art to the '048 Patent under 35 U.S.C. § 102(a)(1) and (2). Tamm was not considered during the prosecution of the application that issued as the '488 Patent. Ex. 1001.

As with the '488 Patent, Tamm describes “uppers for a shoe” constructed of “one-piece knitwear.” Ex. 1004 at Abstract, ¶ 40. Tamm further discloses

techniques for three dimensional knitwear using different yarns with a range of different properties, including colors. *Id.* at ¶¶ 87–89, 111, Figs. 9, 12 (reproduced below).

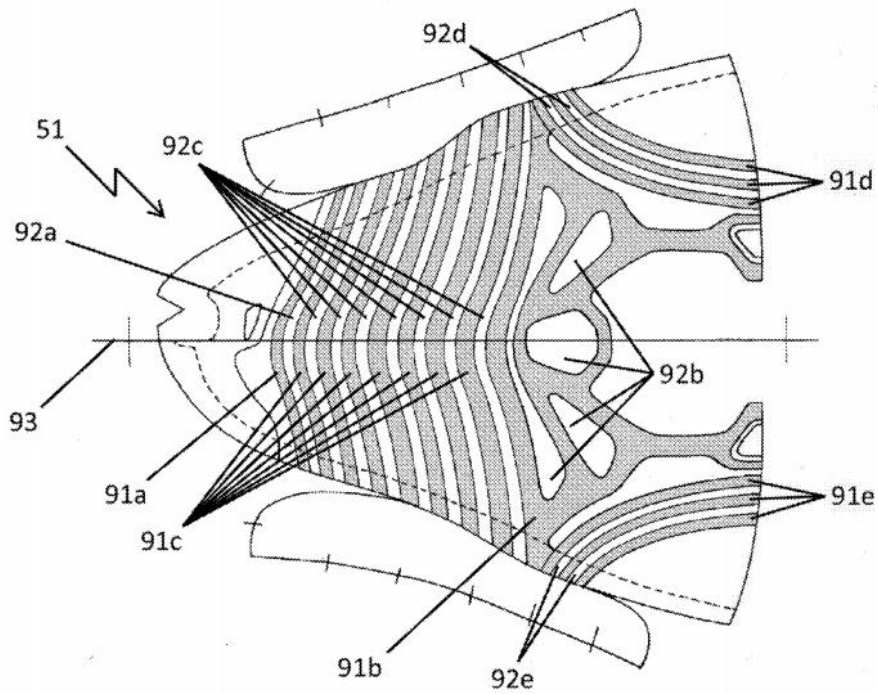


Fig. 9

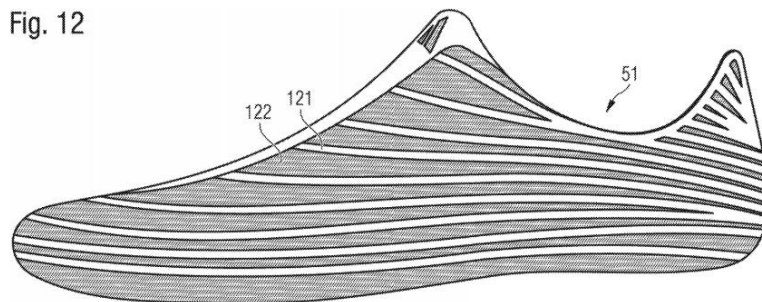


Fig. 12

Tamm teaches that a shoe upper constructed with its techniques can be used to produce desirable visual effects, while minimizing waste during the manufacturing process. *Id.* at ¶ 127

Tamm acknowledges the importance and value of visual effects in this invention, giving examples of varying mesh opening size and knit constructions using front side and back side colored yarn to achieve specific visual effects. *Id.* at ¶¶ 111–13; *see also* Ex. 1007 at ¶¶ 60–64. For example, Tamm explains that, “[c]olored areas with several colors may be created by using a different thread and/or by additional layers.” Ex. 1004 at ¶ 111. Tamm further discloses knitting techniques that rely on the principle of obscuring visibility from a front viewing perspective to achieve a visual affect. For example, in Jacquard knitting, “only one yarn appears on the visible side of the product and the respective other yarn runs invisibly on the other side of the product.” *Id.* at ¶ 113. Tamm discloses an extensive range of opaque fibers and yarns which may be used in knitwear. *Id.* at ¶¶ 131–58.

The potential for added visual interest to articles of footwear based on the disclosure of Tamm would be of great importance to a person of ordinary skill in the art, considering production simplicity (*e.g.*, reduced labor cost), the visual nature of the shoe business, recyclability and cost reduction. Ex. 1007 at ¶¶ 60–62. This omnipresent pressure would encourage any person of ordinary skill in the art to explore any visual implications of Tamm, whether express, inherent, or in combination with person of ordinary skill in the art’s pre-existing knowledge. *Id.*

Based on the disclosure of Tamm, a person of ordinary skill in the art would necessarily understand how to achieve visual effects by obscuring the surface area of knitwear. Ex. 1007 at ¶¶ 61–64. Tamm expressly discloses a number of visual effects that are applications of the principle of one surface obscuring another. *Id.* A person of ordinary skill in the art would necessarily understand, based on Tamm’s explicit disclosures, that visual effects may be achieved by using the 3D structures to present different colors or patterns depending on viewing angle. *Id.*

Tamm further explains that “[t]hree-dimensional knitwear] may be combined with structural variations and/or variations of the number of stitches in the direction of the course ... [whereby] [c]ontours, structures, knobs, curvatures, notches, openings, fasteners, loops and pockets may be integrated into the knitwear in a single process.” Ex. 1004 at ¶¶ 87–89. A person of ordinary skill in the art would necessarily understand from Tamm that the second partial areas of Tamm could be constructed of three-dimensional, opaque knitwear that would create a visual effect by obscuring the surface of first partial areas depending both on the distance between second partial areas, and the viewing angle of an observer. Ex. 1007 at ¶¶ 61–64.

B. The Challenged Claims Are Anticipated and/or Obvious**1. Ground 1: Claims 10 and 16–17 Are Anticipated by Shindo****i. Independent Claim 10**

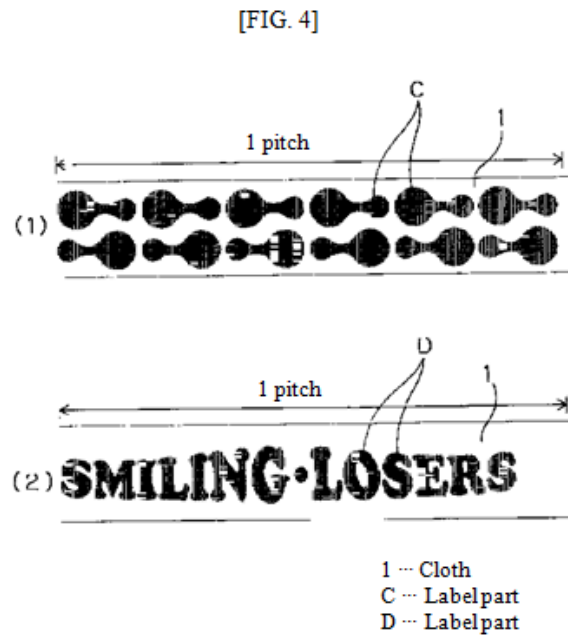
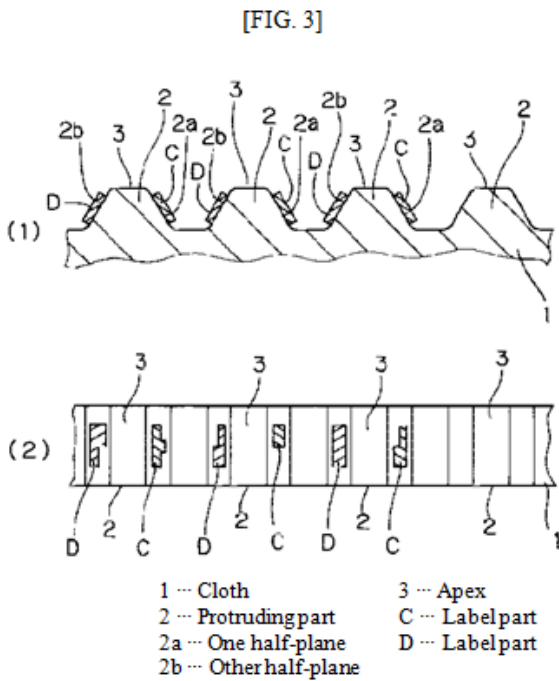
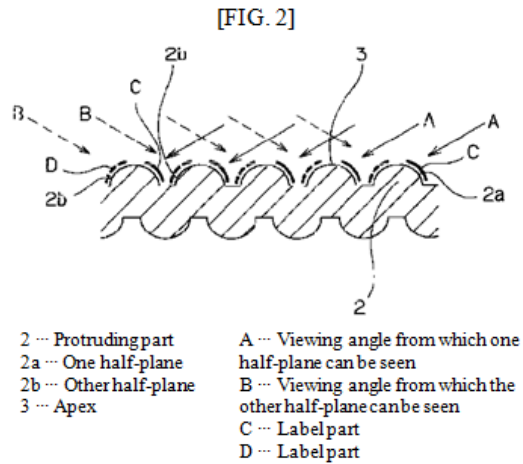
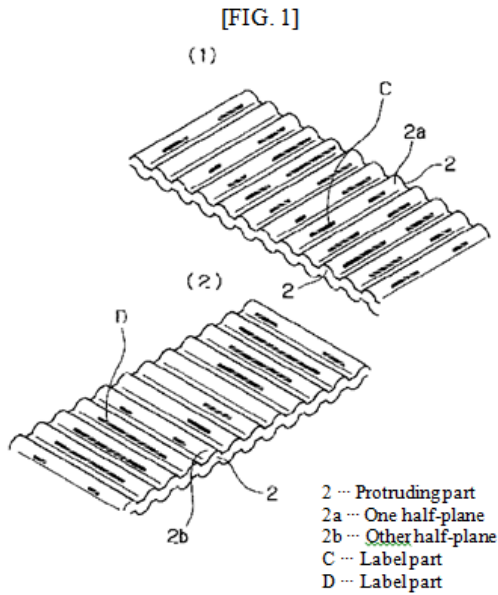
- a. Element 10[a]: “A knitted component for incorporating into an article, the knitted component comprising: a plurality of lenticular knit structures”**

Shindo discloses “[a] knitted component for incorporating into an article, the knitted component comprising: a plurality of lenticular knit structures,” as required by claim element 1[a] of the ’488 Patent.

In particular, Shindo discloses “[a] cloth with changing label based on two-plane labeling ... characterized in that the cloth is formed in an elongated tape shape through weaving or *knitting*.” Ex. 1005 at claim 3 (emphasis added). Moreover, Shindo explains that this cloth “may be widely used in various belt applications and in label applications for bags, clothing, etc.” *Id.* at ¶ 11. A person of ordinary skill in the art would be aware of innovations in the belt and label decorative field, because knit webbed tape, and woven labels are frequently incorporated into footwear. Ex. 1007 at ¶ 67.

As discussed above in § IV.A, a “lenticular knit structure” is “a knit structure configured to present at least two different colors to a viewer when viewed from different viewing angles.” Shindo discloses specific embodiments including a plurality of “lenticular knit structures” at elements 2, 2a, 2b, and 3 of

Figures 1–4 (reproduced below).



Shindo teaches that it “seeks to provide a cloth with changing label based on two-plane labeling, which allows unique label parts to be created such that the labeling changes when viewed from a viewing angle from which one half-plane of

the protruding parts formed on the cloth can be seen versus when viewed from a viewing angle from which the other half-plane can be seen, allowing various label changes to be achieved.” Ex. 1005 at ¶ 4.

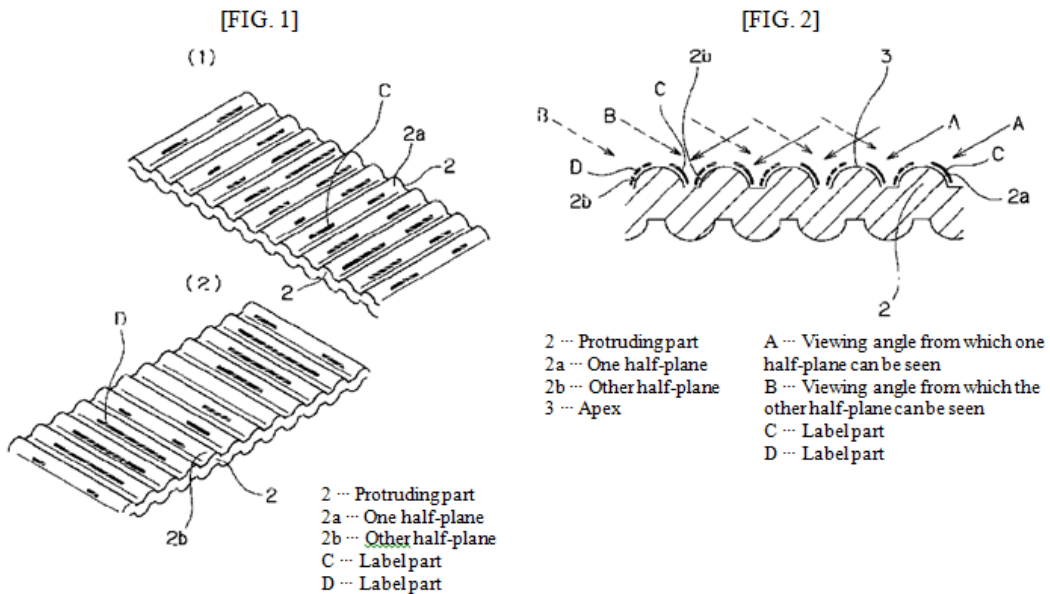
Additionally, Shindo explains that the specific embodiments shown in these figures may be knitted (*i.e.*, “[t]he following implementations can be illustrated for the label parts C, D of the half-planes 2a, 2b[:] ... [k]nitting of yarn of different color from the cloth),” *id.* at ¶ 10) and may be incorporated into an article (*i.e.*, “may be widely used in various belt applications and in label applications for bags, clothing, etc.,” *id.* at ¶ 11).

Accordingly, Shindo discloses “[a] knitted component for incorporating into an article, the knitted component comprising: a plurality of lenticular knit structures.”

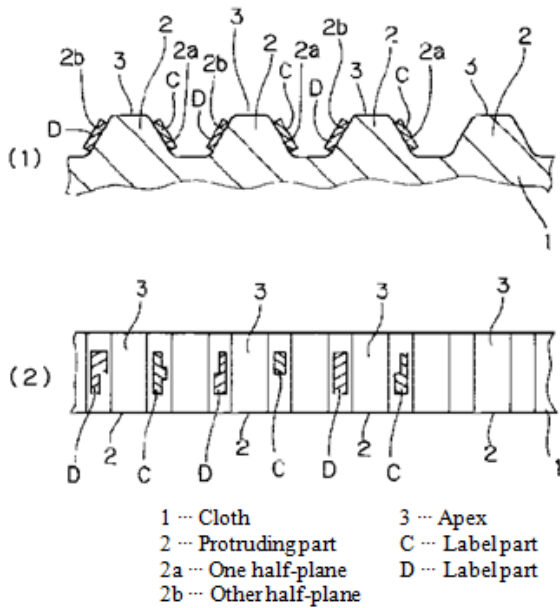
- b. Element 10[b]: “each of the lenticular knit structures including a first portion formed using a first yarn on one side of the lenticular knit structure and a second portion formed using a second yarn disposed on an opposite side of the lenticular knit structure”**

Shindo discloses “each of the lenticular knit structures including a first portion formed using a first yarn on one side of the lenticular knit structure and a second portion formed using a second yarn disposed on an opposite side of the lenticular knit structure,” as required by claim element 1[b] of the ’488 Patent.

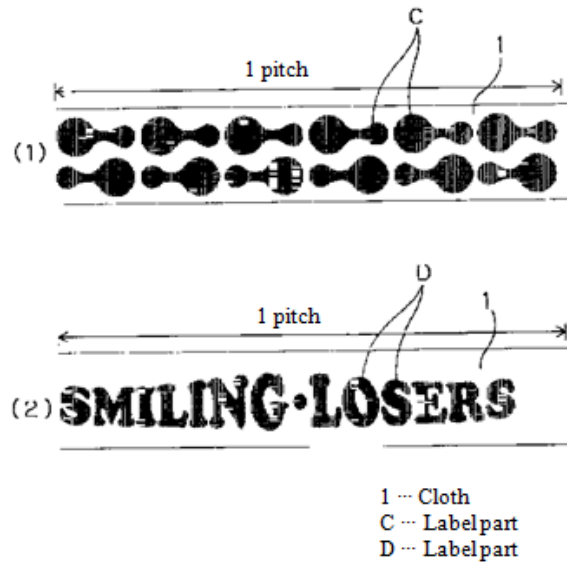
In particular, Shindo discloses that “when the invention is characterized in that the label part on *each half-plane* is formed by print coloring of the cloth or *is comprised of different color yarn integrated into the cloth, as described in claim 4*, besides print coloring of the cloth, the label parts may be integrated with the cloth through weaving or *knitting of different color yarn integrally into the cloth*, which can be easily incorporated into a cloth weaving program or knitting program.” Ex. 1005 at ¶ 7. Shindo shows in Figures 1–3 (reproduced below) that the “half-planes” 2a and 2b, comprised of different yarns, may be disposed on opposite sides of the lenticular knit structure (*i.e.*, element 2).



[FIG. 3]



[FIG. 4]



Thus, the “[o]ne half-plane” 2a of Shino corresponds to the claimed “first portion formed using a first yarn” and “[o]ther half-plane” 2b corresponds to the claimed “second portion formed using a second yarn.” As can be seen, the two half-planes are disposed on opposite sides of the lenticular knit structure.

Accordingly, Shindo discloses “each of the lenticular knit structures including a first portion formed using a first yarn on one side of the lenticular knit structure and a second portion formed using a second yarn disposed on an opposite side of the lenticular knit structure.”

c. Element 10[c]: “the first yarn and the second yarn being different”

Shindo discloses “the first yarn and the second yarn being different,” as required by claim element 1[c] of the ’488 Patent.

In particular, as discussed above with respect to claim element 10[b], Shindo discloses that different yarns may be used to form the respective “half-planes” 2a and 2b. *See* § VI.B.1.i.b *supra*; Ex. 1005 at ¶ 7 (“when the invention ... is comprised of different color yarn integrated into the cloth, as described in claim 4, besides print coloring of the cloth, the label parts may be integrated with the cloth through weaving or knitting of different color yarn integrally into the cloth), ¶ 10 (“The following implementations can be illustrated for the label parts C, D of the half-planes 2a, 2b[:] ... Knitting of yarn of different color from the cloth”), claim 4 (“A cloth with changing label based on two-plane labeling as set forth in any one of claims 1 through 3, characterized in that the label part on each half-plane is formed by print coloring of the cloth or is comprised of different color yarn integrated into the cloth”); *see also id.* at Figs. 1–3.

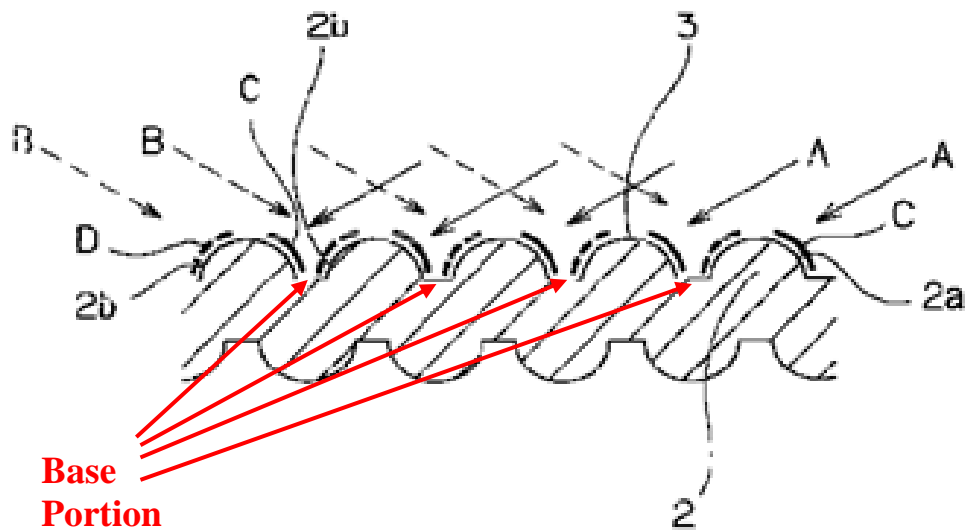
Accordingly, Shindo discloses “the first yarn and the second yarn being different.”

d. Element 10[d]: “a base portion disposed between adjacent lenticular knit structures”

Shindo discloses “a base portion disposed between adjacent lenticular knit structures” as required by claim element 10[d] of the ’488 Patent.

In particular, as shown in the annotated versions of Figures 2 and 3 below, Shindo shows a base portion disposed between adjacent lenticular knit structures.

[FIG. 2]

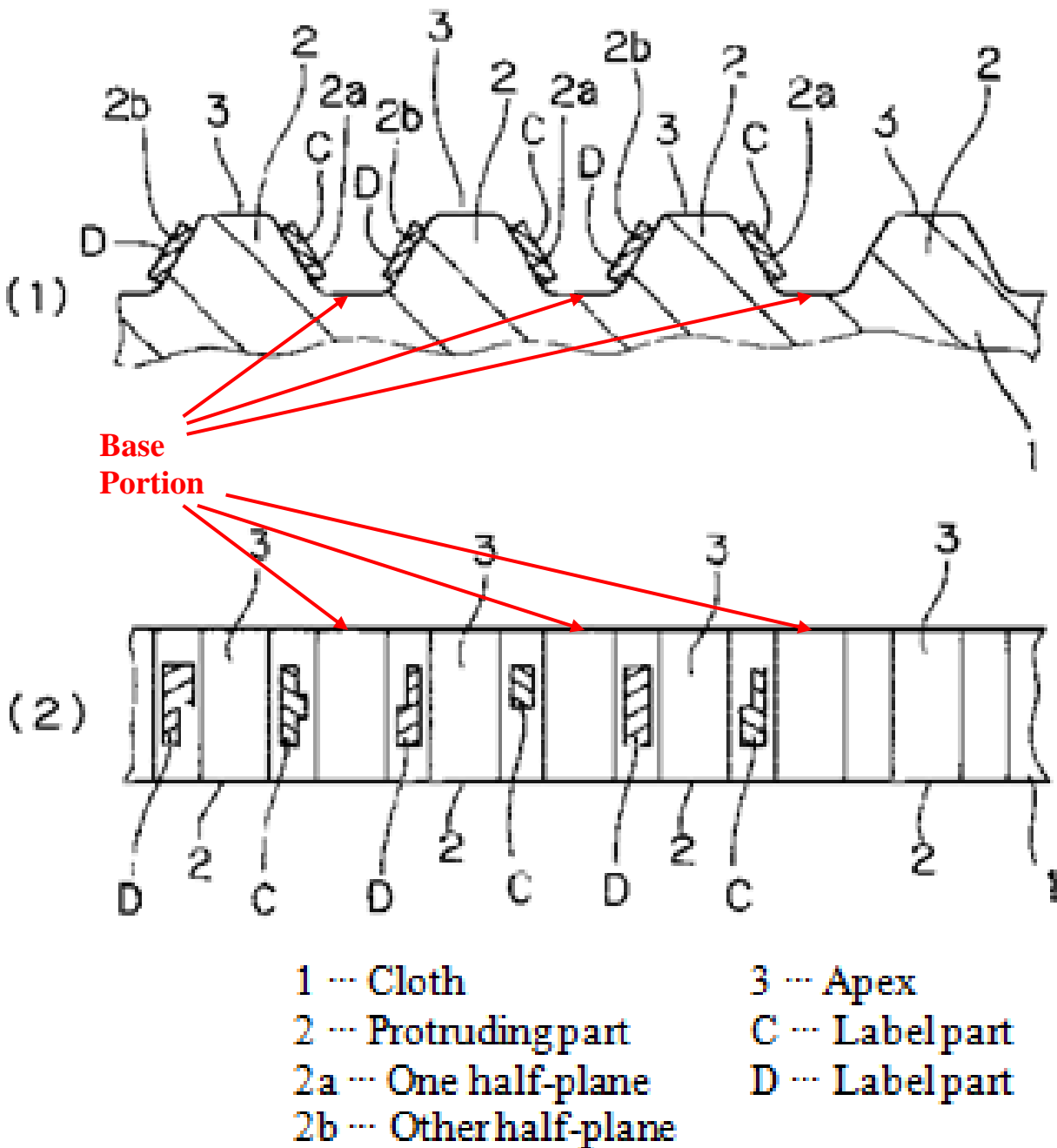


**Base
Portion**

- 2 ... Protruding part
- 2a ... One half-plane
- 2b ... Other half-plane
- 3 ... Apex

- A ... Viewing angle from which one half-plane can be seen
- B ... Viewing angle from which the other half-plane can be seen
- C ... Label part
- D ... Label part

[FIG. 3]



This accords with how the '488 Patent depicts the base portion disposed between adjacent lenticular knit structures. The base portion of the '488 patent is

identified as element 136. *See, e.g.*, Ex. 1001 at 12:1–3. As shown by Figure 14 (reproduced below), base portion 136 is disposed between adjacent lenticular knit structures in the same manner as the base portions of Shindo are.

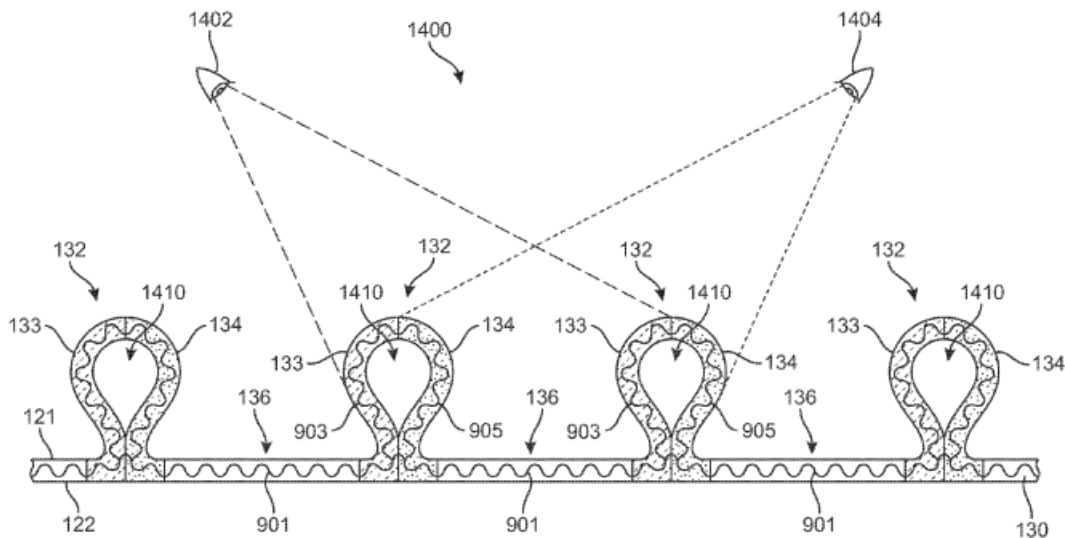
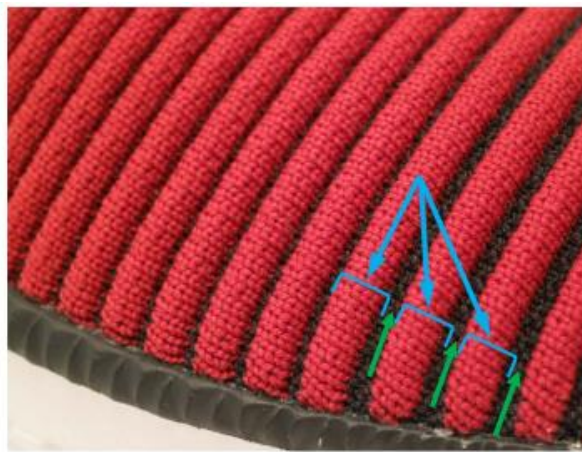


FIG. 14

This also accords with how Patent Owner is alleging that this limitation is met by the accused products in the District Court Action. There Patent Owner accused three of Petitioner’s shoes, including the TSUGI Shinsei evoKNIT, of infringing the Challenged Claims. Infringement Contentions (Ex. 1006) at 173. As shown in the excerpt from Patent Owner’s Infringement Contentions below, Patent Owner identified a portion of the upper of the shoe as the “base portion” that is disposed in the same manner as the base portions of Shindo are.

a base portion disposed adjacent to the at least one lenticular knit structure;



Accordingly, Shindo discloses “a base portion disposed between adjacent lenticular knit structures.”

- e. **Element 10[e]: “wherein the first portion, the second portion, and the base portion are formed of unitary knit construction with the knitted component”**

Shindo discloses “wherein the first portion, the second portion, and the base portion are formed of unitary knit construction with the knitted component,” as required by claim element 10[e] of the ’488 Patent.

As discussed above in § IV.B, a knit component is formed of “unitary knit construction” when it is “substantial[ly] constructed of a one-piece element through a knitting process without the need for additional manufacturing steps or processes.”

Shindo discloses that its cloth can be constructed as a one-piece element through a knitting process without the need for additional manufacturing steps or processes. In particular, Shindo discloses “that the label part on *each half-plane is*

... *comprised of different color yarn integrated into the cloth.*” Ex. 1005 at claim 4. Thus, the “half-planes,” corresponding to the first and second portions, and the “cloth,” corresponding to the base portion and remainder of the knitted component, are “integrated” into a single, one-piece element of knitwear (*i.e.*, unitary knit construction). Shindo further explains that “the label parts may be integrated with the cloth through weaving or knitting of different color yarn integrally into the cloth, which can be easily incorporated into *a cloth weaving program or knitting program*, making the production easy and allowing very accurate label parts to be formed for each half-plane.” *Id.* at ¶ 7. Thus, Shindo discloses that the construction may be formed in a single “knitting program.” By disclosing that the aforementioned elements can be integrated into a single knit component, Shindo discloses the first portion, the second portion, and the base portion being formed of unitary knit construction with the knitted component, which in turn may be incorporated into an article. *See* Ex. 1007 at ¶ 81.

Accordingly, Shindo discloses “wherein the first portion, the second portion, and the base portion are formed of unitary knit construction with the knitted component.”

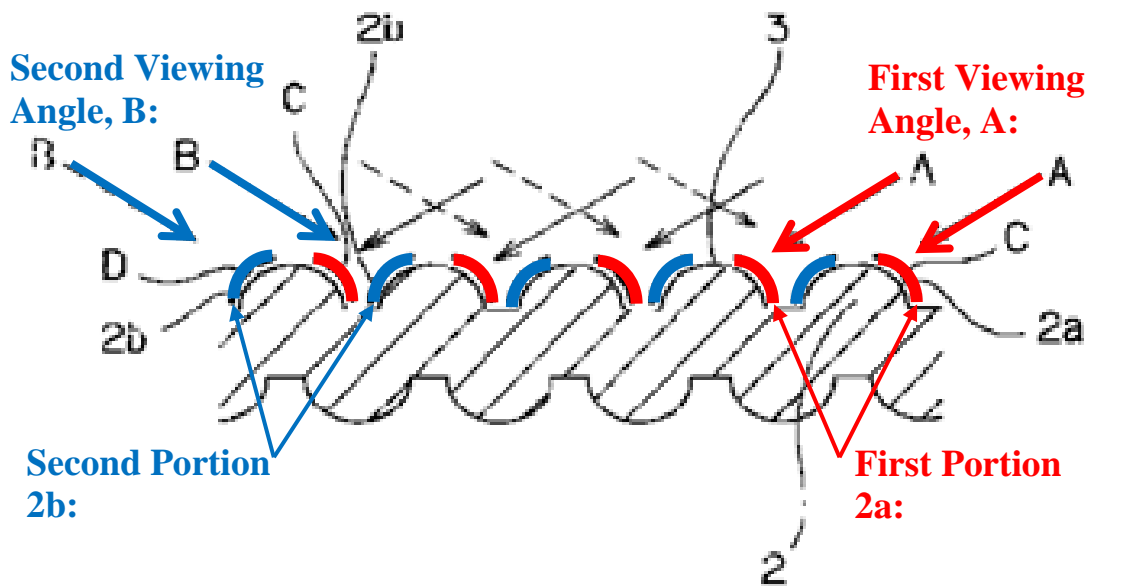
- f. **Element 10[f]: “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle”**

Shindo discloses “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle,” as required by claim element 10[f] of the ’488 patent.

As discussed above, Shindo discloses “a cloth made such that its labeling changes when viewed from the side of one half-plane of protruding parts formed on the cloth versus when viewed from the side of the other half-plane.” Ex. 1005 at ¶ 1. Shindo further explains, by reference to the embodiment illustrated in Figure 2 (annotated version included below), that “unique label parts C, D [can] be created such that the labeling changes when viewed from a viewing angle A from which one half-plane 2a of the protruding parts 2 formed on cloth 1 can be seen versus when viewed from a viewing angle B from which the other half-plane 2b can be seen, allowing various label changes to be achieved.” *Id.* at Effect. Accordingly, “each half-plane of the protruding parts has a label part which can be seen as

graphics, characters, symbols or other labeling from a viewing angle from which the other half-plane is concealed based on a successive number of half-planes, thus making it possible to form various different label parts based on two-plane labeling, including color labeling, different label content, etc., whereby the labeling that can be seen from one half-plane differs from the labeling that can be seen from the other half-plane, making it possible to implement unique two-plane labeling based on change in view angle, which can be employed for a broad range of applications.” *Id.* at ¶ 12.

[FIG. 2]



2 ... Protruding part
 2a ... One half-plane
 2b ... Other half-plane
 3 ... Apex

A ... Viewing angle from which one half-plane can be seen
 B ... Viewing angle from which the other half-plane can be seen
 C ... Label part
 D ... Label part

Moreover, Shindo explains that the visual effects referenced by the term “labeling” include “graphics, characters, symbols or other labeling ... including color labeling, different label content, etc.” *Id.* at Effect of the Invention. Thus, as can be seen in the annotated version of Figure 2 of Shindo above, when viewed from a first viewing angle (*e.g.*, ‘A’, “Viewing angle from which one-half-plane can be seen”), one half-plane 2a (*i.e.*, the first portion of the lenticular knit structure) creates a first visual effect; and when viewed from a second, different viewing angle (*e.g.*, ‘B’, “Viewing angle from which the other half-plane can be seen”), the other half-plane 2b creates a second viewing effect. Because, as discussed above, the two half-planes 2a and 2b are different, *see* § VI.B.1.i.c, the two visual effects are different.

Accordingly, Shindo discloses “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle.”

* * *

As shown above, Shindo discloses each of the limitations of claim 10 of the ’488 Patent. Claim 10 is therefore anticipated by Shindo.

ii. Claim 16

- a. Element 16[a]: “A method of manufacturing a knitted component for incorporating into an article, the method comprising: knitting a base portion of the knitted component”**

Shindo discloses “[a] method of manufacturing a knitted component for incorporating into an article, the method comprising: knitting a base portion of the knitted component,” as required by claim element 16[a] of the ’488 Patent

As discussed above, *see* § VI.B.1.i.a, VI.B.1.i.d *supra*, Shindo discloses a knitted component for incorporation into an article that comprises a base portion (*i.e.*, the “cloth” portion, such as that depicted as element 1 in Figures 3 and 4). Shindo discloses an embodiment, at claim 3, wherein this cloth (*i.e.*, base) and “each half-plane” (*i.e.*, the first and second portions) are “formed ... through weaving or knitting.” Ex. 1005 at ¶ 7. Shindo further explains that “when the invention is characterized in that the label part on each half-plane is ... comprised of different color yarn integrated into the cloth, as described in claim 4 ... the label parts may be integrated with the cloth through weaving or knitting of different color yarn integrally into the cloth, which can be easily incorporated into a cloth weaving program or knitting program, making the production easy.” *Id.* at ¶ 7. Thus, Shindo discloses that its article may be manufactured by a method that includes knitting a base portion of a knitted component, such as through the use of a knitting program. Ex. 1007 at ¶ 87.

Accordingly, Shindo discloses “[a] method of manufacturing a knitted component for incorporating into an article, the method comprising: knitting a base portion of the knitted component.”

b. Element 16[b]: “knitting a first portion of a lenticular knit structure using a first yarn”

Shindo discloses “knitting a first portion of a lenticular knit structure using a first yarn,” as required by claim element 16[b] of the ’488 Patent.

As discussed above, *see* § VI.B.1.i.b, *supra*, Shindo discloses a first “half-plane” of a lenticular knit structure that corresponds with a “first portion” of a lenticular knit structure. Shindo further discloses embodiments in which “each half-plane is ... comprised of different color yarn.” Ex. 1005 at ¶ 7. Thus, in disclosing a first half-plane comprised of a first colored yarn, Shindo discloses first portion knit using a first yarn. Ex. 1007 at ¶ 89. Moreover, as discussed above in § VI.B.1.ii.a, Shindo discloses a method of manufacturing such a knit component, such as through the use of a knitting program.

Accordingly, Shindo discloses “knitting a first portion of a lenticular knit structure using a first yarn.”

c. Element 16[c]: “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn”

Shindo discloses “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn,” as required by claim element 16[c] of the ’488 Patent.

As discussed above, *see* § VI.B.1.i.b, VI.B.1.i.d *supra*, Shindo discloses a second “half-plane” of a lenticular knit structure that corresponds with a “second portion” of a lenticular knit structure. Ex. 1005 at ¶ 4. Shindo further discloses embodiments in which “each half-plane is ... comprised of different color yarn.” *Id.* at ¶ 7. Moreover, as discussed above in § VI.B.1.ii.a, Shindo discloses a method of manufacturing such a knit component, such as through the use of a knitting program. *See* Ex. 1007 at ¶ 91.

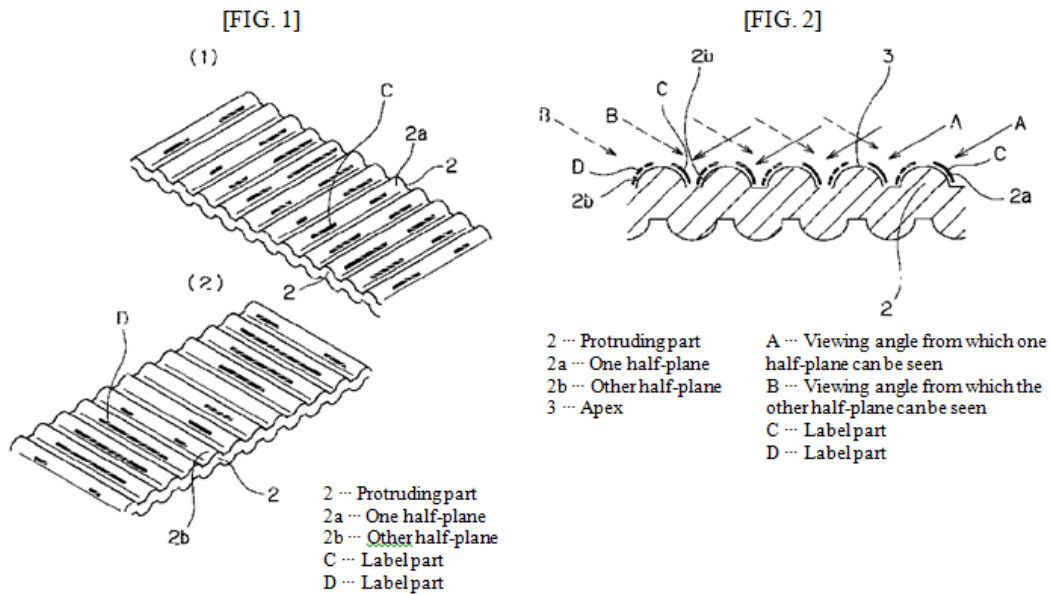
Accordingly, Shindo discloses “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn.”

d. Element 16[d]: “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction”

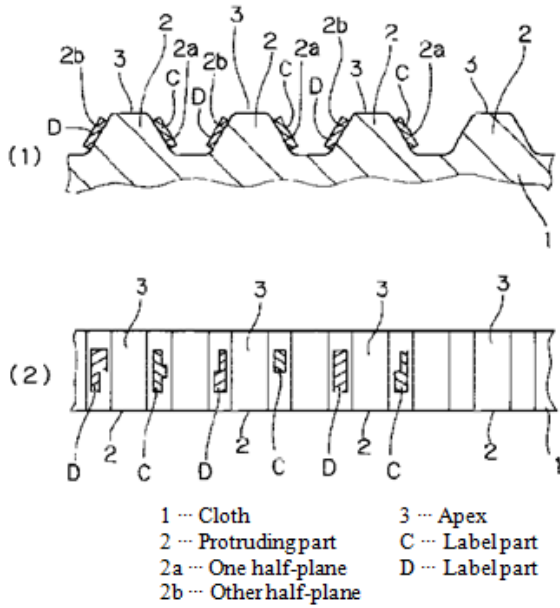
Shindo discloses “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit

structure and the lenticular knit structure extends away from the base portion in a vertical direction,” as required by claim element 16[d] of the ’488 Patent.

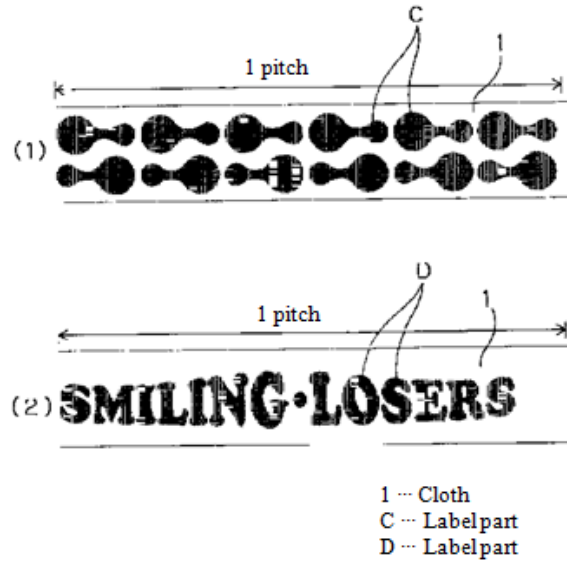
As discussed above, *see* § VI.B.1.i.b *supra*, Shindo discloses a lenticular knit structure formed such that the first and second portions (*i.e.*, the half-planes 2a and 2b) are disposed on opposite sides of the lenticular knit structure. As shown in Figures 1–4 of Shindo (reproduced below), the lenticular knit structure of Shindo extends away from the base portion, *see* § VI.B.1.i.d, in a vertical direction.



[FIG. 3]



[FIG. 4]



Moreover, as discussed above in § VI.B.1.ii.a, Shindo discloses a method of manufacturing such a knit component, such as through the use of a knitting program. *See* Ex. 1007 at ¶¶ 93–94.

Accordingly, Shindo discloses “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction.”

- e. **Element 16[e]: “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle”**

Shindo discloses a method of manufacturing a knitted component “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle,” as required by claim element 16[e] of the ’488 Patent. *See* § VI.B.1.i.f *supra*.

* * *

As shown above, Shindo discloses each of the limitations of claim 16 of the ’488 Patent. Claim 16 is therefore anticipated by Shindo.

- iii. **Claim 17: “The method according to claim 16, wherein the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process.”**

Shindo discloses “the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process,” and a person of ordinary skill in the art would understand that this occurs during the knitting process, as required by claim 17 of the ’488 Patent *See* § VI.B.1.i.e *supra*; Ex. 1007 at ¶ 99.

* * *

As shown above, Shindo discloses each of the limitations of claim 17 of the '488 Patent. Claim 17 is therefore anticipated by Shindo.

2. Ground 2: Claims 1–5 and 16–17 Are Obvious Based on Shindo, Tamm, and the Knowledge of a Person of Ordinary Skill in the Art

i. Claim 1

a. Element 1[a]: “An article of footwear including an upper and a sole structure attached to the upper”

Tamm discloses “[a]n article of footwear including an upper and a sole structure attached to the upper,” as required by claim element 1[a] of the '488 Patent.

In particular, Tamm discloses that “[s]hoes, particularly sports shoes usually comprise an upper and a sole secured to that.” Ex. 1004 at ¶ 3. The background section of the '488 Patent states that “[c]onventional articles of footwear generally include two primary elements, an upper and a sole structure,” effectively conceding that this claim element is prior art. Ex. 1001 at 1:26–27.

Accordingly, Tamm discloses “[a]n article of footwear including an upper and a sole structure attached to the upper.”

b. Element 1[b]: “the upper incorporating a knitted component formed of unitary knit construction”

Tamm discloses “the upper incorporating a knitted component formed of unitary knit construction,” as required by claim element 1[b] of the '488 Patent.

As discussed above in § IV.B, a knit component is formed of “unitary knit construction” when it is “substantial[ly] constructed of a one-piece element through a knitting process without the need for additional manufacturing steps or processes.”

Tamm discloses a shoe upper that may be “manufactured as one-piece knitwear.” Ex. 1004 at Abstract, ¶ 191. Tamm further discloses that knit areas with different properties (*i.e.*, first and second partial areas with different elasticities) may be incorporated into the same “one-piece knitwear.” *Id.*

Accordingly, Tamm discloses “the upper incorporating a knitted component formed of unitary knit construction.”

- c. **Element 1[c]: “the knitted component comprising: at least one lenticular knit structure including a first portion and a second portion disposed on opposite sides of the lenticular knit structure”**

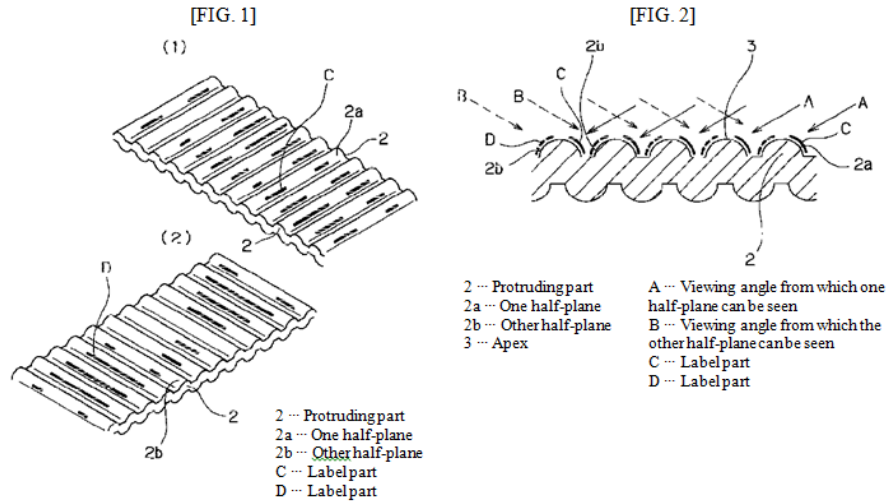
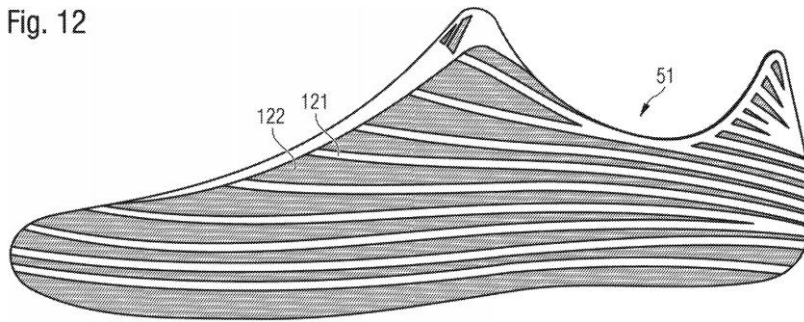
Claim element 1[c] of the ’488 Patent, which requires “the knitted component comprising: at least one lenticular knit structure including a first portion and a second portion disposed on opposite sides of the lenticular knit structure,” is obvious in view of Shindo, *see* § VI.B.2.a *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. A person of ordinary skill in the art would have been motivated to use the teachings of Tamm and Shindo, along with their own knowledge, to create a shoe with a unitary knit construction as taught by Tamm with the lenticular knit structure disclosed by Shindo, to yield the

predictable result of a footwear upper incorporating a lenticular knit as required by claim element 1[c]. *See* Ex. 1007 at ¶¶ 109–13.

As discussed above, Shindo discloses “the knitted component comprising: at least one lenticular knit structure including a first portion and a second portion disposed on opposite sides of the lenticular knit structure.” *See* § VI.B.1.i.a–VI.B.1.i.b *supra*. The primary function of the lenticular knit component disclosed in Shindo is to generate a visual effect “when viewed from the side of one half-plane of protruding parts formed on the cloth versus when viewed from the side of the other half-plane” Ex. 1005 at ¶ 1.

As discussed above, Tamm discloses an article of footwear, with an upper incorporating a knitted component of unitary knit construction. *See* § VI.B.2.i.a *supra*. Tamm further discloses that any of a number of “areas” disclosed as comprising the one-piece knit component may be formed of a variety of different knitwear types, including three-dimensional knitwear. Ex. 1004 at ¶ 90. Three-dimensional knitwear can integrate, for example, “bulges,” in addition to “[c]ontours, structures, knobs, curvatures, notches, openings, fasteners, loops and pockets.” *Id.* at ¶¶ 88–89. In an embodiment illustrated at Figure 12 (reproduced below) Tamm shows an upper incorporating three-dimensional knitwear with bulges and contours similar to the lenticular knit component illustrated by Shindo’s Figures 1 and 2 (reproduced below).

Fig. 12



Tamm further explains that knitwear may be selected based on physical and visual properties (*i.e.*, “in many embodiments, a variety of structures and surfaces that may be created with knitwear ... [i]t is possible to manufacture both very heavy and/or stiff knitwear and very soft, transparent and/or stretchable knitwear”), Ex. 1004 at ¶ 78; *see also id.* at ¶¶ 99, 111–13, 173 (discussing visual properties of various forms of knitwear in terms of material selection, *e.g.* “whereas knitwear made from a monofilament is considerably more rigid and less stretchable, this knitwear may not include the *desired Surface properties*, such as *e.g.* Smoothness, *colors*, transport of moisture, *outer appearance and variety of textile structures as usual knitwear has*”), just as Shindo explains that the lenticular knit “cloth” that it

discloses “can be employed for a broad range of applications, Ex. 1005 at ¶ 12; *see also id.* at ¶¶ 7, 11, Technical Field of the Invention. Moreover, a person of ordinary skill in the art of footwear development and manufacturing would understand that knit materials are often selected on the basis of visual effects, and that knit webbings, of the type disclosed in certain embodiments of Shindo, are often used in footwear design and manufacturing. Ex. 1007 at ¶¶ 112–13. A person of ordinary skill in the art would further understand the benefit of “incorporating [Shindo’s claimed invention] into a cloth weaving program or knitting program,” such as that ordinarily used to manufacture the “one-piece knitwear” disclosed in Tamm. *Id.*

Accordingly, a person of ordinary skill in the art could have used any form of knitwear for the knit shoe disclosed by Tamm, and three-dimensional knitwear in particular. *Id.* A person of ordinary skill in the art would have been motivated to use the lenticular knit cloth disclosed by Shindo as the knitwear for the shoe of Tamm in order to obtain a shoe incorporating lenticular knit fabric. *Id.*

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create an article of footwear incorporating an upper incorporating a knitted component formed of unitary knit construction, “the knitted component comprising: at least one lenticular knit structure including a first

portion and a second portion disposed on opposite sides of the lenticular knit structure.”

d. Element 1[d]: “a base portion disposed adjacent to the at least one lenticular knit structure”

Claim element 1[d] of the ’488 Patent, which requires “a base portion disposed adjacent to the at least one lenticular knit structure,” is obvious in view of Shindo, *see* § VI.B.1.i.d *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. Ex. 1007 at ¶¶ 114–16.

As discussed above, Shindo discloses “a base portion disposed adjacent to the at least one lenticular knit structure.” *See* § VI.B.1.i.d *supra*.

Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure as taught by Shindo. *See* § VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, along within view of their own knowledge and experience, to create a shoe with a lenticular knit structure with “a base portion disposed adjacent to the at least one lenticular knit structure.”

e. Element 1[e]: “wherein the at least one lenticular knit structure extends away from the base portion on an exterior surface of the upper”

Claim element 1[e] of the ’488 Patent, which requires “a base portion disposed adjacent to the at least one lenticular knit structure,” is obvious in view of

Shindo, *see* § VI.B.1.ii.d *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. Ex. 1007 at ¶¶ 117–19.

As discussed above, Shindo discloses an article “wherein the at least one lenticular knit structure extends away from the base portion on an exterior surface of the upper.” *See* § VI.B.1.ii.d *supra*.

Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure as taught by Shindo. *See* § VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with a lenticular knit structure “wherein the at least one lenticular knit structure extends away from the base portion on an exterior surface of the upper.”

- f. Element 1[f]: “wherein the first portion of the at least one lenticular knit structure is associated with a first visual effect when the upper is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the upper is viewed from a second viewing angle that is different than the first viewing angle”**

Claim element 1[f] of the ’488 Patent, which requires “wherein the first portion of the at least one lenticular knit structure is associated with a first visual effect when the upper is viewed from a first viewing angle and the second portion

of the at least one lenticular knit structure is associated with a second visual effect when the upper is viewed from a second viewing angle that is different than the first viewing angle,” is obvious in view of Shindo, *see* § VI.B.1.i.f *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. Ex. 1007 at ¶¶ 120–22.

As discussed above, Shindo discloses an article “wherein the first portion of the at least one lenticular knit structure is associated with a first visual effect when the upper is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the upper is viewed from a second viewing angle that is different than the first viewing angle.” *See* § VI.B.1.i.f *supra*.

Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure as taught by Shindo. *See* § VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with lenticular knit structure “wherein the first portion of the at least one lenticular knit structure is associated with a first visual effect when the upper is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect

when the upper is viewed from a second viewing angle that is different than the first viewing angle.”

* * *

As shown above, each of the limitations of claim 1 of the '488 Patent is disclosed by the combination of Shindo and Tamm in view of the knowledge of a person of ordinary skill in the art. Claim 1 is therefore obvious.

- ii. **Claim 2: “The article of footwear according to claim 1, wherein the first portion of the at least one lenticular knit structure is formed using a first yarn and the second portion of the at least one lenticular knit structure is formed using a second yarn, the first yarn and the second yarn having different characteristics.”**

Claim 2 of the '488 Patent, which requires “the first portion of the at least one lenticular knit structure is formed using a first yarn and the second portion of the at least one lenticular knit structure is formed using a second yarn, the first yarn and the second yarn having different characteristics,” is obvious in view of Shindo, *see* § VI.B.1.i.c *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. Ex. 1007 at ¶¶ 124–26.

As discussed above, Shindo discloses a lenticular knit structure formed using first and second yarns, “the first yarn and the second yarn being different.” *See* § VI.B.1.i.c *supra*. Shindo further discloses that the first yarn (corresponding with a first “half-plane”) and the second yarn (corresponding to a second “half-plane”)

may have different characteristics, such as color. In particular Shindo discloses that each portion may be “comprised of different color yarn.” Ex. 1005 at Claim 4, ¶ 7.

Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure as taught by Shindo. *See* § VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with lenticular knit structure “wherein the first portion of the at least one lenticular knit structure is formed using a first yarn and the second portion of the at least one lenticular knit structure is formed using a second yarn, the first yarn and the second yarn having different characteristics.”

Claim 2 is therefore obvious.

- iii. Claim 3: “The article of footwear according to claim 2, wherein the first yarn and the second yarn are one or more of different yarn types, different colors, different textures, and different deniers.”**

Claim 3 of the ’488 Patent, which requires “the first yarn and the second yarn are one or more of different yarn types, different colors, different textures, and different deniers,” is obvious in view of Shindo, *see* § VI.B.1.i.c, VI.B.2.ii *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above with respect to claim 2, Shindo discloses that its first and second yarns may be of one or more of different colors. *See* § VI.B.1.i.c, VI.B.2.ii *supra*; Ex. 1005 at Claim 4, ¶ 7.

Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the knit lenticular structure as taught by Shindo. *See* VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with lenticular knit structure “wherein the first yarn and the second yarn are one or more of different yarn types, different colors, different textures, and different deniers.” Claim 3 is therefore obvious.

- iv. **Claim 4: “The article of footwear according to claim 2, wherein the first yarn substantially generates the first visual effect when the upper is viewed from the first viewing angle and the second yarn substantially generates the second visual effect when the upper is viewed from the second viewing angle.”**

Claim 4 of the ’488 Patent, which requires “the first yarn substantially generates the first visual effect when the upper is viewed from the first viewing angle and the second yarn substantially generates the second visual effect when the upper is viewed from the second viewing angle,” is obvious in view of Shindo, *see* § VI.B.1.i.f *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above with respect to claims 2 and 3, *see* § VI.B.1.i.c, VI.B.2.ii, VI.B.2.iii *supra*, Shindo discloses a lenticular knit structure formed using first and second yarns of different colors which correspond with opposite half-planes of protruding lenticular knit structures. Ex. 1005 at Claims 4, ¶ 7. As discussed above with respect to claim element 10[f], Shindo also discloses that each half-plane (corresponding to the claimed first and second portions) is associated with a different effect visual effect, corresponding with first and second viewing angles:

“Furthermore, when the invention is characterized in that different label parts are formed as the label part on one half-plane and the label part on the other half-plane, as in claim 2, for example, if one label part is graphics and the other is characters, multiple successive half-planes on one side allow graphics to be seen from a viewing angle from which one half-plane of the protruding parts is visible and the other half-plane is concealed, while the multiple successive half-planes on the other side allow characters to be seen from a viewing angle from which the one half-plane is concealed and the other half-plane is visible, making it possible for different labeling, such as a combination of graphics and characters, to be produced based on change in the viewing angle direction.”

Ex. 1005 at ¶ 6.

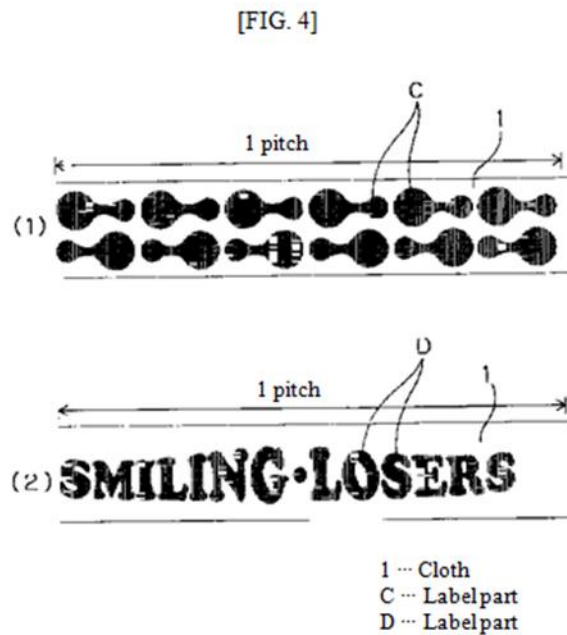
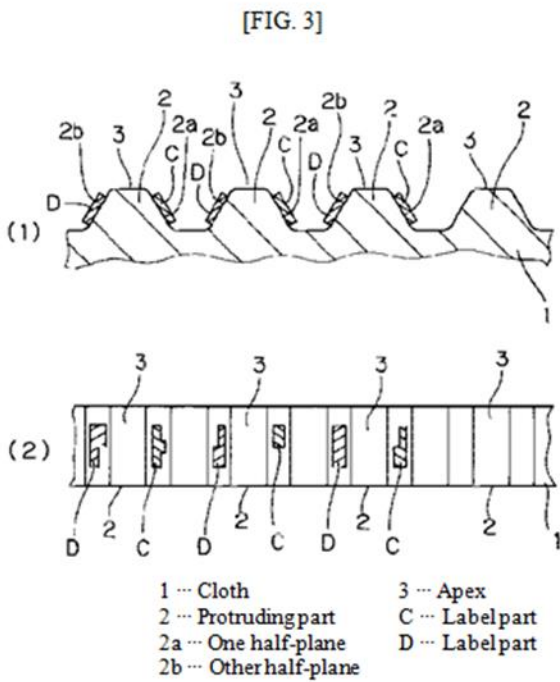
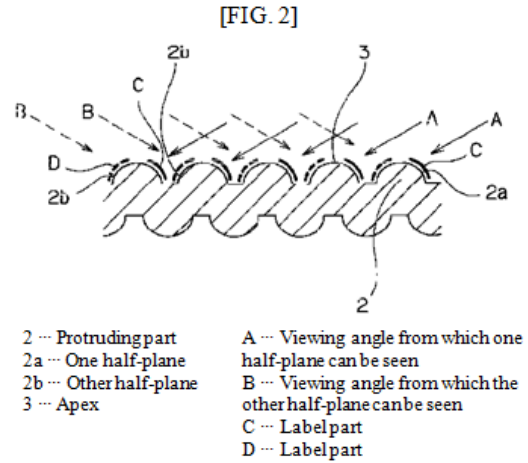
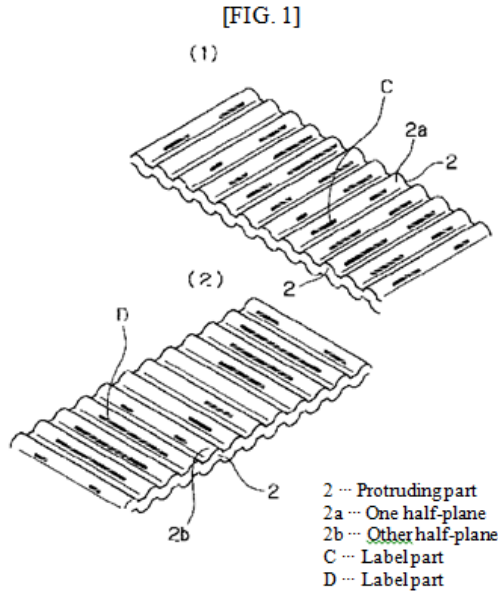
Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure cloth as taught by Shindo. *See* § VI.B.2.i.c *supra*.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with lenticular knit structure “wherein the first yarn substantially generates the first visual effect when the upper is viewed from the first viewing angle and the second yarn substantially generates the second visual effect when the upper is viewed from the second viewing angle.” Claim 4 is therefore obvious.

- v. **Claim 5: “The article of footwear according to claim 1, wherein the knitted component further comprises a plurality of lenticular knit structures.”**

Claim 5 of the '488 Patent, which requires “the knitted component further comprises a plurality of lenticular knit structures,” is obvious in view of Shindo, *see* § VI.B.1.i.a *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As disclosed above, Shindo discloses a knitted component comprising a plurality of lenticular knit structures. *See* Ex. 1005 at Figs. 1–3; § VI.B.1.i.a *supra*.



Further, as discussed above, a person of ordinary skill in the art would have been motivated to create a shoe with unitary knit construction as taught by Tamm with the lenticular knit structure as taught by Shindo. *See § VI.B.2.i.c supra.*

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to create a shoe with lenticular knit structure “wherein the knitted component further comprises a plurality of lenticular knit structures.” Claim 5 is therefore obvious.

vi. Claim 16

- a. Element 16[a]: “A method of manufacturing a knitted component for incorporating into an article, the method comprising: knitting a base portion of the knitted component”**

Claim element 16[a], which requires “[a] method of manufacturing a knitted component for incorporating into an article, the method comprising: knitting a base portion of the knitted component,” is obvious in view of Shindo, *see* § VI.B.1.ii.a *supra*, Tamm, and the knowledge of a person of ordinary skill in the art. Ex. 1007 at ¶¶ 142–48

As discussed above, Shindo discloses a knitted component for incorporation into an article that comprises a base portion. *See* § VI.B.1.ii.a *supra*. Shindo additionally discloses that its article may be manufactured by a method that includes knitting a base portion of a knitted component, such as through the use of a knitting program. *Id.*

It would have been obvious to a person of ordinary skill of the art, based on their own knowledge, to manufacture such a knitted component using standard

knitting techniques, such as weft-knitting, warp knitting, or flat knitting, any of which could be used to manufacture the knitted component described by Shindo. Ex. 1007 at ¶¶ 142–48. Given a description, such as that provided by Shindo of the end product and of the visual effect generated by the end product, a person of ordinary skill in the art would be motivated to apply those well-known techniques to manufacture the knitted component. *Id.* at ¶¶ 142–48. A person of ordinary skill in the art would appreciate that standard knitting techniques which permit the simple integration of 3D shapes and localized color suggest the possibility of coloring opposite sides of such a 3D structure to create visual interest. *Id.*

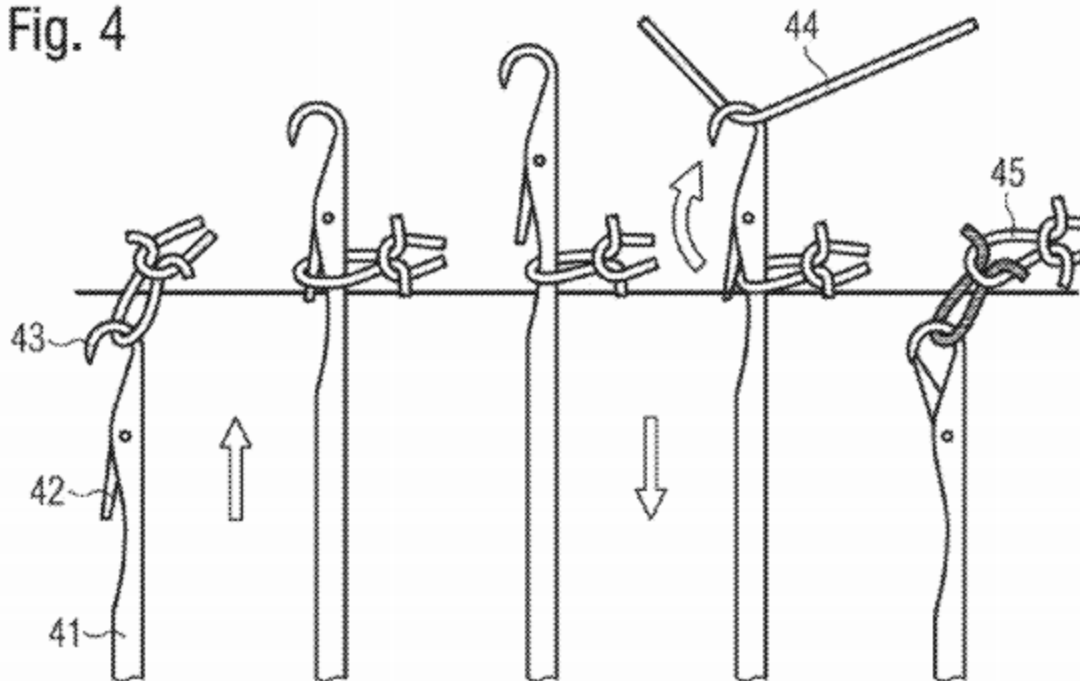
Moreover, lenticular effects are very common in footwear applications and alternating 3D structures would suggest a lenticular decoration to a person of ordinary skill in the art. *Id.* A person of ordinary skill in the art would understand that any of these techniques could be used to manufacture the knitted component described by Shindo. *Id.* A person of ordinary skill in the art would also have been motivated to use knitting techniques taught by Tamm to manufacture the knit component described in Shindo. *Id.* Tamm discloses that “three-dimensional knitwear,” with “[c]ontours, structures, knobs, [and] curvatures,” similar to those described by Shindo, “may also be manufactured on weft-knitting machines and warp-knitting machines, particularly on flat-knitting machines.” Ex. 1004 at ¶¶ 87, 89. Tamm further explains,

Three-dimensional knitwear may, for example, be manufactured by varying the number of stitches in the direction of the wales by partial courses being formed. The corresponding mechanical process is referred to as “needle parking”. Depending on the requirement, this technique may be combined with structural variations and/or variations of the number of stitches in the direction of the course. When partial courses are formed, stitch formation temporarily occurs only along a partial width of the weft-knitted fabric or warp-knitted fabric. The needles which are not involved in the stitch formation keep the half stitches (“needle parking”) until weft knitting occurs again at this position. In this way, it is possible to form bulges, for example.

Id. at ¶ 88.

Tamm illustrates one such process of stitch forming by latch needles during weft-knitting at Figure 4 (reproduced below).

Fig. 4



Tamm also extensively teaches methods for achieving visual and structural effects in multi-layer knit components implementing the three dimensional structures described above. *Id.* at ¶¶ 92–113. For example, Tamm discloses,

A further possibility for a functional design of knit wear is the use of certain variations of the basic weaves. In weft-knitting, it is possible for bulges, ribs or waves to be weft-knitted in certain areas, for example, in order to achieve reinforcement in these places. A wave may, for example, be created by stitch accumulation on a layer of knitwear. This means that more Stitches are weft-knitted or warp-knitted on one layer than on another layer. Alternatively, different stitches are weft-knitted fabric on the one layer than on the other layer, e.g. by being weft-knitted fabric tighter, wider or using a different yarn.

Thickening is caused in both alternatives In order to obtain a rather thick weft-knitted fabric, for example, it is possible to use the weft-knitting techniques “tuck” or “half cardigan”, which are described in “Fachwissen Bekleidung, 6th ed. by H. Eberle et al., for example.

Id. at ¶¶ 101–02.

Additionally, regarding color and the visibility of colored yarns used in knitwear, Tamm recites,

Colored areas with several colors may be created by using a different thread and/or by additional layers Further effects may be achieved by weft-knitted insets (inlaid works) or Jacquard knitting. Inlaid works are areas which only provide a certain yarn, e.g. in a certain color. Neighboring areas which may comprise a different yarn, for example in a different color, are then connected to each other by a so-called handle. During Jacquard knitting, two rows of needles are used and two different yarns run through all areas, for example. However, in certain areas only one yarn appears on the visible side of the product and the respective other yarn runs invisibly on the other side of the product.

Id. at ¶¶ 111–13. The techniques for manufacturing three-dimensional knitwear described by Tamm above are well-known, and a person of ordinary skill in the art would have been motivated to apply such techniques to the article described in

Shindo. Ex. 1007 at ¶ 148. Given a description, such as that provided by Shindo of the end product and of the visual effect generated by the end product, a person of ordinary skill in the art would be motivated to apply those well-known techniques taught by Tamm manufacture the knitted component. *Id.* at ¶¶ 142–48. Indeed, Tamm expressly teaches the desirability of including visual effects in knitwear that is similar to that of Shindo, Ex. 1004 at ¶¶ 111–13, Fig 12; *see also* Ex. 1007 at ¶¶ 60-64. Accordingly, in using the techniques of Tamm to manufacture the knit component of Shindo, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article by a method comprising knitting a base portion of the knitted component. Ex. 1007 at ¶¶ 142–48.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to “manufactur[e] a knitted component for incorporat[ion] into an article [by] knitting a base portion of the knitted component.”

b. Element 16[b]: “knitting a first portion of a lenticular knit structure using a first yarn”

Claim element 16[b], which requires “knitting a first portion of a lenticular knit structure using a first yarn,” is obvious in view of Shindo, *see* § VI.B.1.ii.b *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above, Shindo discloses a first portion of a lenticular knit structure using a first yarn. *See* § VI.B.1.ii.a *supra*. Further, as discussed above, it

would have been obvious to a person of ordinary skill of the art, based on their own knowledge regarding knitting techniques or using known knitting techniques as taught by Tamm, to manufacture such a knitted component. *See* § VI.B.2.vi.a *supra*; Ex. 1007 at ¶ 151. In so doing, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article by a method comprising knitting a first portion of a lenticular knit structure using a first yarn.

Id.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to manufacture a knitted component by “knitting a first portion of a lenticular knit structure using a first yarn.”

c. Element 16[c]: “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn”

Claim element 16[c], which requires “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn,” is obvious in view of Shindo, *see* § VI.B.1.ii.c *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above, Shindo discloses a second portion of the lenticular knit structure using a second yarn, different than the first yarn. *See* § VI.B.1.ii.c *supra*. Further, as discussed above, it would have been obvious to a person of ordinary

skill of the art, based on their own knowledge regarding knitting techniques or using known knitting techniques as taught by Tamm, to manufacture such a knitted component. *See* § VI.B.2.vi.a *supra*. In so doing, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article by a method comprising knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn. Ex. 1007 at ¶ 154.

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to manufacture a knitted component by “knitting a second portion of the lenticular knit structure using a second yarn, the second yarn being different from the first yarn.”

- d. Element 16[d]: “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction”**

Claim element 16[d], which requires “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction,” is obvious in view of Shindo, *see* § VI.B.1.ii.d *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above, Shindo discloses a lenticular knit structure wherein the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction. *See* § VI.B.1.ii.d *supra*. Further, as discussed above, it would have been obvious to a person of ordinary skill of the art, based on their own knowledge regarding knitting techniques or using known knitting techniques as taught by Tamm, to manufacture such a knitted component. *See* § VI.B.2.vi.a *supra*; Ex. 1007 at ¶ 157. In so doing, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article, the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction. *Id.*

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to manufacture a knitted component with a lenticular knit structure, “the lenticular knit structure being formed so that the first portion and the second portion are disposed on opposite sides of the lenticular knit structure and the lenticular knit structure extends away from the base portion in a vertical direction.”

- e. **Element 16[e]: “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle”**

Claim element 16[e], which requires “the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle,” is obvious in view of Shindo, *see* § VI.B.1.ii.e *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above, Shindo discloses a knitted component with a lenticular knit structure wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle. *See* § I.B.1.ii.e *supra*. Further, as discussed above, it would have been obvious to a person of ordinary skill of the art, based on their own knowledge regarding knitting techniques or using known knitting techniques as taught by Tamm, to manufacture

such a knitted component. *See* § VI.B.2.vi.a *supra*; Ex. 1007 at ¶¶ 159–60. In so doing, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle. *Id.*

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to manufacture a knitted component “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle.”

* * *

As shown above, each of the limitations of claim 16 of the '488 Patent is disclosed by the combination of Shindo and Tamm in view of the knowledge of a person of ordinary skill in the art. Claim 16 is therefore obvious.

- vii. Claim 17: “The method according to claim 16, wherein the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process.”**

Claim 17 of the '488 Patent, which requires “the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process,” is obvious in view of Shindo, *see* § VI.B.2.vii *supra*, Tamm, and the knowledge of a person of ordinary skill in the art.

As discussed above, Shindo discloses a knitted component wherein the base portion, the first portion, and the section portion are formed of unitary knit construction. *See* § VI.B.2.vii *supra*. Further, as discussed above, it would have been obvious to a person of ordinary skill of the art, based on their own knowledge regarding knitting techniques or using known knitting techniques as taught by Tamm, to manufacture such a knitted component. *See* § VI.B.2.vi.a *supra*; Ex. 1007 at ¶¶ 163–64. In so doing, a person of ordinary skill in the art would manufacture a knitted component for incorporating into an article wherein the base portion, the first portion, and the second portion are formed of unitary knit construction during a knitting process. *Id.*

Accordingly, a person of ordinary skill in the art would have found it obvious to use the teachings of Tamm and Shindo, in view of their own knowledge and experience, to manufacture a knitted component “wherein the first portion of the lenticular knit structure is associated with a first visual effect when the knitted

component is viewed from a first viewing angle and the second portion of the at least one lenticular knit structure is associated with a second visual effect when the knitted component is viewed from a second viewing angle that is different than the first viewing angle.” Claim 17 is therefore obvious.

VII. MANDATORY NOTICES (UNDER 37 C.F.R. § 42.8(A)(1))

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

PUMA North America, Inc., PUMA Mostro GmbH, PUMA Suede Holdings, Inc., PUMA Sprint GmbH, and PUMA SE are the real parties-in-interest.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner states that the '488 Patent is currently the subject of the following on-going The following litigation may be affected by a decision in this proceeding: *NIKE, Inc. v. PUMA North America, Inc.*, No. 1:18-cv-10876 (D. Mass.) (the “District Court Action”).

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

Petitioner provides the following counsel and service information. A Power of Attorney accompanies this Petition pursuant to 37 C.F.R. § 42.10(b).

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Service information for lead and back-up counsel is provided in the designation of lead and back-up counsel, above. Service of any documents via hand-delivery may be made at the postal mailing addresses listed above. Petitioner also consents to electronic service by email at puma@brownrudnick.com

VIII. GROUNDS FOR STANDING (37 C.F.R. § 42.104(A))

Petitioner certifies that the '488 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the claims of the '488 Patent on the grounds identified in herein.

Petitioner further certifies that the prohibitions of 35 U.S.C. § 315(a)–(b) are inapplicable.

IX. PAYMENT OF FEES (37 C.F.R. § 42.103)

The undersigned authorizes the Office to charge the fee required for this Petition for *Inter Partes* Review to Deposit Account No. 50-0369. Any additional fees that might be due are also authorized.

Dated: May 3, 2019

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PETITION FOR *INTER PARTES* REVIEW specified in 37 C.F.R. § 42.24 has 13,359 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word 2010.

Dated: May 3, 2019

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4) and § 42.105, the undersigned hereby certifies that a copy of this **PETITION FOR *INTER PARTES* REVIEW** and supporting materials has been served on Patent Owner via Priority Mail Express at the correspondence addresses of record for the '488 Patent as follows:

NIKE, Inc./BGL
P.O. Box 10395
Chicago, Illinois 60610

A courtesy copy of the Petition for *Inter Partes* Review and supporting material has also been sent to Patent Owner's counsel in the District Court Action via e-mail as follows:

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U.S. PATENT NO. 9,078,488

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