

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LULULEMON USA INC.,
Petitioner,

v.

NIKE, INC.,
Patent Owner.

IPR2023-01460
Patent 9,730,484 B2

Before JOSIAH C. COCKS, CARL M. DeFRANCO, and
GEORGE R. HOSKINS, *Administrative Patent Judges*.

DeFRANCO, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Nike, Inc. (“Nike”) is the owner of U.S. Patent No. 9,730,484 B2 (Ex. 1001, “the ’484 patent”). lululemon usa inc. (“lululemon”) filed a Petition requesting *inter partes* review of claims 1–19 of the ’484 patent. Paper 1 (“Pet.”). Nike filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). Because we determine that lululemon demonstrates a reasonable likelihood that at least independent claims 1, 10, and 11 of the ’484 patent are unpatentable, we institute *inter partes* review of all claims as challenged in the Petition. *See* 35 U.S.C. § 314(a).

I. BACKGROUND

A. Related Matters

The ’484 patent is the subject of several pending infringement actions, all of which are in their early stages at this time: *Nike, Inc. v. lululemon usa inc.*, No. 1:23-cv-00771 (S.D.N.Y.) (fact discovery yet to close); *Nike, Inc. v. New Balance Athletics, Inc.*, No. 1:23-cv-12666 (D. Mass.) (complaint yet to be answered); and *Nike, Inc. v. Skechers U.S.A., Inc.*, No. 2:23-cv-09346 (C.D. Cal.) (scheduling conference yet to occur).¹ *See* Paper 6, 2.

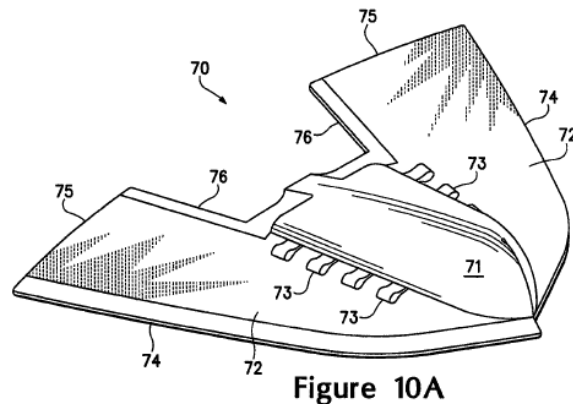
B. The ’484 Patent

The ’484 Patent is directed to a footwear “upper” that “includes a knitted element formed from at least one mechanically manipulated yarn” in a “flat knitting process.” Ex. 1001, 3:10–29, 4:28–32. The “[f]lat knitted element . . . can be formed directly in desired three dimensional shapes,” which provides the benefits of reducing costs, increasing flexibility, and eliminating seams and sewing. *Id.* at 4:49–60; *see also id.* at 7:56–57 (“the

¹ The district court’s docket sheet in each case was consulted to determine the case’s status. The parties are instructed to update the Board on any material events occurring in each case. *See* 37 C.F.R. § 42.8(a)(3).

flat knitting process may be utilized to form generally three-dimensional structures”). “By selectively placing multiple different yarns and/or stitch patterns at multiple different locations in the overall structure during the knitting process, flat knitted products may have multiple different physical properties . . . at multiple different locations or zones within a single, unitary construction.” *Id.* at 4:60–5:1.

Figure 10A of the '484 Patent, reproduced below, shows an embodiment of the upper having a knitted element with a “three-dimensional structure formed through a flat knitting process.” *Id.* at 10:18–20.



As shown, upper 70 includes “a central portion 71” and “a pair of side portions 72.” *Id.* at 10:20–21. “[S]ide portions 72 are relatively flat,” while “central portion 71 has a domed shape formed through the flat knitting process.” *Id.* at 10:34–36. “When assembled into an article of footwear, central portion 71 extends over the foot, and side portions 72 wrap under the foot.” *Id.* at 10:23–25.

C. The Challenged Claims

Of the challenged claims, claims 1, 10, and 11 are independent.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An article of footwear comprising
an upper including a flat-knitted element formed from at least one yarn mechanically manipulated in a flat-knitting process, the flat-knitted element including a first layer having:
a central portion having a domed, three-dimensional structure configured for extending over the top of a foot;
a first side portion being formed of unitary construction with the central portion and extending from a first side of the central portion; and
a second side portion being formed of unitary construction with the central portion and extending from a second side opposite the first side of the central portion,
the domed, three-dimensional structure shaped to extend above the plane of the first side portion and the second side portion when the flat-knitted element is in a flattened configuration.

Ex. 1001, 13:6–22.

Independent claim 11 is directed to a “method of manufacturing an article of footwear” and recites essentially the same limitations as claim 1. *Id.* at 14:11–28. Independent claim 10 also recites limitations similar to those of claims 1 and 11, but adds that the flat-knitted element includes “a first layer and a second layer” with “the second layer being flat-knitted with the first layer at opposite ends of the second layer to form an overlapped loop.” *Id.* at 13:49–14:10.

D. The Asserted Challenges

Claims Challenged	35 U.S.C. § ²	Basis
1, 5–9	103	Lockwood, ³ Dua ⁴
1, 5–9	103	Lockwood, Dua, Norton ⁵
1–19	103	Dua, Hong, ⁶ Lockwood
2–4, 18, 19	103	Dua, Hong, Lockwood, Voughlohn ⁷

II. ANALYSIS

A. Level of Ordinary Skill in the Art

lululemon proposes, and Nike does not dispute, that one skilled in the art would have had “at least a bachelor’s degree in mechanical engineering, textile engineering, or similar technical degree and at least 3 years of experience working with knitted textiles for use in fabric-based articles, including apparel such as footwear.” Pet. 12–13 (citing Ex. 1002 ¶¶ 43–45); *see also* Prelim. Resp. 9 (“Nike applies lululemon’s proposed level of skill in the art.”).

lululemon’s proposed definition is consistent with the problems and solutions in the ’484 patent and prior art of record. Accordingly, for purposes of institution, we adopt lululemon’s definition of the level of skill in the art.

² The Leahy-Smith America Invents Act (“AIA”), effective March 16, 2013, included revisions to 35 U.S.C. § 103. Because the application from which the ’484 patent issued claims priority to applications filed before the effective date of the AIA, we apply the pre-AIA version of § 103 here.

³ US 3,641,603, issued Feb. 15, 1972 (Ex. 1003, “Lockwood”).

⁴ US 2005/0193592 A1, published Sep. 8, 2005 (Ex. 1004, “Dua”).

⁵ US 6,558,784 B1, issued May 6, 2003 (Ex. 1011, “Norton”).

⁶ H. Hong, *The development of 3D shaped knitted fabrics for technical purposes on a flat knitting machine*, INDIAN JOURNAL OF FIBRE & TEXTILE RESEARCH, VOL. 19, PGS. 189–194 (Sep. 1994) (Ex. 1005, “Hong”).

⁷ US 2006/0053658 A1, published Mar. 16, 2006 (Ex. 1006, “Voughlohn”).

B. Claim Construction

lululemon asserts that “the plain and unambiguous language of the claim[s] requires that the flat-knitted element having the claimed features must be formed from a flat-knitting process.” Pet. 13–14. Nike agrees with lululemon’s construction of the claims, i.e., “that the flat-knitted element, including the ‘domed, three dimensional structure,’ ‘must be formed from a flat-knitting process.’” Prelim. Resp. 9–10 (quoting Petition 13–14). In doing so, Nike explains that the claims do not cover “a flat knitted element with a three-dimensional structure formed only *after* the knitting process is complete.” *Id.* at 10. Thus, consistent with the parties’ reasoning, we construe the claims to require that the “central portion having a domed, three-dimensional structure” be formed during the flat-knitting process, and not afterward.

C. Lululemon’s Challenge of Claims 1–19 Based on Dua, Hong, and Lockwood (i.e., “Ground 3”)

1. Independent Claims 1 and 11

We begin with lululemon’s challenge of claims 1 and 11. *See* Pet. 39–55, 67–69, respectively. As noted earlier, claims 1 and 11 recite essentially identical limitations, namely, elements 1[a]–1[e] and 11[a]–11[e] as annotated by lululemon. *See id.* at 10, 44–55, 67–69. lululemon relies on Dua for teaching each of those claim elements “except for the central portion having a domed, three-dimensional structure” (i.e., element 1[b]). *Id.* at 41. For that missing claim element, lululemon points to Hong and Lockwood. *Id.* at 41–44, 46–51, 68. According to lululemon, “Hong discloses flat knitting three-dimensional structures, including domed, three-dimensional structures,” while “Lockwood . . . discloses an upper with a domed, three

dimensional structure in the claimed location.” *Id.* at 41 (citing Ex. 1002 ¶ 92); *see also id.* at 47–51 (citing Ex. 1003, Abstract, 1:60–64, 2:18–62, 6:40–45, 7:21–37, Fig. 35; Ex. 1005, 1, 5). Noting that “[a]ll three references are directed to manufacturing textile articles with knitted elements, such as clothing or footwear” and that “both Lockwood and Dua are directed to manufacturing uppers for shoes, including uppers that include knitted elements,” lululemon contends that one skilled in the art would have been led to modify Dua’s upper to include a flat-knitted, three-dimensional structure, as taught by Lockwood and Hong, because it would simplify assembly of the upper and reduce necessary cutting and waste of expensive materials. *Id.* at 41–51 (citing Ex. 1002 ¶¶ 92–95; Ex. 1003, 1:60–64, 6:40–45, 7:21–37; Ex. 1005, 1, 5).

Nike argues claims 1 and 11 together. *See* Prelim. Resp. 26. Nike’s sole response to lululemon’s challenge of claims 1 and 11 is that “lululemon fails to show that the combination of Dua, in view of Hong and Lockwood, teaches or suggests a ‘domed, three-dimensional structure’ that is formed *during* the ‘flat knitting process,’ as recited in claim[s] 1, 10, and 11.” *Id.* According to Nike, claims 1 and 11 require that the “domed, three-dimensional structure” be “formed . . . in a flat-knitting process,” whereas “Hong describes knitting-to-shape *two-dimensional* patterns, like those shown in Figures 3(2)–9(2), *and then forming those patterns* directly into three-dimensional shapes.” *Id.* at 27–28 (Ex. 2002 ¶¶ 42–47) (emphasis added). In support of that contention, Nike relies on the testimony of its expert, who opines that the final knitted fabric (“Knitted Fabric”) shown in Figures 3(3)–9(3) of Hong “would need to be created *using post-knitting steps*,” such as an “adjoining” step, because “the patterns shown in Hong’s

Figures 3(2)–9(2) are not sufficient to create the elements shown in Hong’s Figures 3(3)–9(3) during the knitting process.” Ex. 2002 ¶¶ 43, 46.

Based on the current record, we credit the testimony of lululemon’s expert over that of Nike’s expert. lululemon’s expert points to Hong’s explicit disclosure that “*knitting directly the 3D shapes* can overcome fabric waste and diminish the labour cost inherent to the use of two-dimensional fabrics.” Ex. 1002 ¶ 91 (citing Ex. 1005, 5) (emphasis added). That disclosure clearly teaches or suggests that the 3D shape is accomplished as part of Hong’s flat-knitting process, and not as part of a post-knitting step. Hong makes this clear not only by its title, “*The development of 3D shaped knitted fabrics . . . on a flat knitting machine*,” but also throughout its description of the flat-knitting process:

- “The use of a new electronic flat knitting machine (Shima Seiki SES 122FF) *for producing three-dimensional shaped fabrics* for technical purposes is described.” Ex. 1005, Abstract (emphasis added).
- “This work describes the use of the new flat knitting machines *to knit 3D structures*.” *Id.* at 1 (emphasis added).
- “It is not difficult *to knit a spherical form* in the SES 122FF flat knitting machine.” *Id.* at 4 (emphasis added).
- “By exploiting the capacity of this [flat-knitting] machine, it is possible *to knit more types of three-dimensional knitted fabrics*.” *Id.* at 6 (emphasis added).

Moreover, we find unpersuasive the testimony of Nike’s expert that Hong’s use of a 2D *pattern* in the knitting process necessarily means that the article being knitted is a 2D article as opposed to a 3D article. *See* Ex. 2002 ¶¶ 43–45. To the extent Hong uses a 2D pattern, it appears to be merely to establish the number of needles and courses to be used in the flat-knitting process that produces the actual 3D article. *See, e.g.*, Ex. 1005, 4 (“it is

necessary to start by transferring the three-dimensional concept to a two-dimensional pattern, . . . and then establishing the relation between the number of operating needles and the number of knitted courses.”). Nowhere does Hong appear to mention using the 2D pattern to make a *2D article*. Rather, as discussed above, Hong is devoted *entirely* to describing a flat knitting machine that produces *three-dimensional shaped fabric articles*.

We also find unpersuasive the testimony of Nike’s expert that “[t]he pattern shown in [Hong’s] Figure 5(2) . . . is not sufficient to produce the fully formed shape shown in Figure 5(3),” and, thus, one skilled in the art “would not know how to close the tubes shown in Figure 5(3).” Ex. 2002 ¶¶ 46–47. Hong explicitly states that “[d]uring knitting, the two smaller tubes are separately knitted with two cam systems.” Ex. 1005, 4. That disclosure, at this stage, persuades us that Hong teaches or suggests how its flat-knitting process closes the tubular knitted fabrics depicted in the figures. The parties are free to explore this issue further at trial.

In sum, based on the preliminary record, lululemon sufficiently demonstrates that the asserted Dua-Hong-Lockwood combination teaches or suggests a “domed, three-dimensional structure” that is formed *during* the “flat knitting process,” as required by claims 1 and 11. Nike does not dispute lululemon’s showing as to the other elements of claims 1 and 11, nor does Nike dispute lululemon’s reason to combine the asserted references. *See* Prelim. Resp. 26–30. After reviewing lululemon’s showing, we conclude that the record evidence demonstrates a reasonable likelihood that claims 1 and 11 are unpatentable as obvious over the combined teachings of Dua, Hong, and Lockwood. Thus, lululemon meets the threshold for institution.

2. Independent Claim 10

Similar to claims 1 and 11, lululemon challenges claim 10 as being rendered obvious by the combination of Dua, Hong, and Lockwood. *See* Pet. 64–66. Claim 10 recites limitations similar to those of claims 1 and 11, while adding that the flat-knitted element includes “a first layer and a second layer” with “the second layer being flat-knitted with the first layer at opposite ends of the second layer to form an overlapped loop.” Ex. 1001, 13:49–14:10. For that limitation, lululemon relies on the testimony of its expert that “Dua’s Figure 13,” much like the Figure 10A in the challenged patent, “illustrates lace loops that are knit with the first layer at opposite ends of the second layer to form an overlapped loop.” Pet. 65–66 (citing Ex. 1002 ¶¶ 128–131); *see also* Ex. 1002 ¶¶ 110–113 (citing Ex. 1004 ¶¶ 37, 41, 60).

In response, Nike disputes that the loops shown in Dua’s Figure 13 are made in the same manner as flat-knitted textile element 40, which is shown in Dua’s Figure 8 and on which lululemon relies for the other recited elements of claim 10. *See* Prelim. Resp. 29 (“The corresponding text for Figure 13 in Dua’s detailed description does not even mention laces or loops.”). But, in doing so, Nike disregards Dua’s express disclosure that “textile element 240,” which forms the interior layer of the upper shown in Figure 13, “is manufactured through the process discussed above,” meaning it is made by the same flat-knitting process as “textile element 40” depicted in Dua’s Figures 2–8, which Dua indisputably describes as showing a “single material element” that may include regions for “laces.” *Compare* Ex. 1004 ¶ 59, *with id.* ¶ 37. Moreover, Nike’s expert never addresses the “overlapped loop” limitation of claim 10, so lululemon’s expert testimony is

unrebutted for why one skilled in the art would view Dua as teaching this limitation. *See* Ex. 1002 ¶¶ 128–131; Ex. 2002 ¶¶ 41–47. Thus, in the absence of rebuttal evidence and based on the current record, lululemon demonstrates a reasonable likelihood that independent claim 10 would have been obvious over the asserted Dua-Hong-Lockwood combination.

3. The Dependent Claims

At this time, Nike offers no response to lululemon’s challenge of dependent claims 2–9 and 12–19, except presumably to rely on its reasons with respect to claims 1 and 11 from which they depend. *See* Prelim. Resp. 30. Because lululemon’s challenge of claims 1 and 11 already satisfies the threshold for institution, we see no need to further address the dependent claims at this preliminary stage. Instead, further analysis of the dependent claims is best left for trial after full development of the record.

D. lululemon’s Other Challenges

lululemon notes that its first and second challenges, i.e., “Grounds 1–2,” are “based on Patent Owner’s interpretation” that the claimed “domed, three-dimensional configuration” is formed “after it is knit.” Pet. 13–14. But, as discussed above in Section II.B, Nike rejects that interpretation. *See* Prelim. Resp. 9–10. Thus, because lululemon’s first and second challenges rely on an incorrect assumption as to Nike’s position on claim constriction, we need not address them further.

lululemon’s fourth challenge, i.e., “Ground 4,” involves dependent claims 2–4, 18, and 19. As discussed above, we do not see the need to further address these claims at this preliminary stage.

E. § 325(d) Discretionary Denial

Nike requests that we exercise discretion to deny the Petition under 35 U.S.C. § 325(d). *See* Prelim. Resp. 11–17. We decline. Nike’s request hinges on the fact that Dua was considered during prosecution of the ’484 patent and that Hong’s and Lockwood’s teachings are “cumulative” of Dua’s teachings. *Id.* at 16. Contrary to Nike’s assertion, Lockwood and Hong provide *material* teachings not disclosed by Dua. As discussed above in Section II.C, Lockwood teaches making an upper with a domed, three-dimensional structure, while Hong teaches using a flat-knitting process to make a domed, three-dimensional structure. Nike does not identify any similar teachings in Dua, and based on our review, Dua indisputably lacks those material teachings. Thus, Nike does not persuade us that exercising our § 325(d) discretion is appropriate where the challenge asserted in the Petition is based on material teachings in the prior art that were not considered during prosecution.

III. CONCLUSION

For the above reasons, we determine that the information presented in lululemon’s Petition demonstrates a reasonable likelihood that at least claims 1, 10, and 11 of the ’484 patent are unpatentable as obvious over Dua, Hong, and Lockwood. And because “[e]qual treatment of claims and grounds for institution purposes has pervasive support in *SAS*,” we institute on all the claims as challenged in the Petition. *See* 37 C.F.R. § 42.108(a), (c); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (citing *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018)).

IV. ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–19 of the '484 patent is *instituted*; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

For PETITIONER:

Ali S. Razai
Joseph F. Jennings
Benjamin J. Everton
Jacob L. Peterson
KNOBBE, MARTENS, OLSON, & BEAR, LLP
2AZR@knobbe.com
2JFJ@knobbe.com
2BJE@knobbe.com
2JUP@knobbe.com

For PATENT OWNER:

Christopher J. Renk
Michael J. Harris
Aaron P. Bowling
Lindsey C. Staubach
ARNOLD & PORTER KAYE SCHOLER LLP
chris.renk@arnoldporter.com
michael.harris@arnoldporter.com
aaron.bowling@arnoldporter.com
lindsey.staubach@arnoldporter.com