

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LULULEMON USA INC.,

Petitioner,

v.

NIKE, INC.,

Patent Owner.

Case IPR2023-01460

Patent No. 9,730,484

PATENT OWNER'S PRELIMINARY RESPONSE

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EXHIBITS

Exhibit No.	Description
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2002	Declaration of Dr. Christopher M. Pastore

I. INTRODUCTION

Patent Owner Nike, Inc. (“Nike”) submits this Preliminary Response to the Petition of lululemon usa inc. (“lululemon”) challenging the patentability of Claims 1–19 (the “Challenged Claims”) of U.S. Patent No. 9,730,484 (the “’484 Patent”) (Ex. 1001). The Board should deny institution for two independent reasons: (1) all four grounds of lululemon’s Petition involve the same or substantially the same prior art and arguments the Patent Office previously considered during the original prosecution of the ’484 Patent, and (2) lululemon has not established a reasonable likelihood that it will prevail for any claim in any Ground raised in the Petition.

The ’484 patent relates to a footwear upper including a knitted element that “can be formed directly in desired three dimensional shapes” through a flat-knitting process. Ex. 1001, 4:55–56, 7:56–57. lululemon presents four grounds against various Challenged Claims of the ’484 Patent. Ground 1 is based on a combination of U.S. Patent No. 3,641,603 (“Lockwood”; Ex. 1003) in view of U.S. Patent Application Publication No. 2005/0193592 (“Dua”; Ex. 1004). Ground 2 adds U.S. Patent No. 6,558,784 (“Norton”; Ex. 1011) to the combination of Ground 1. Ground 3 is based on a combination of Dua in view of a 1994 journal article to Hong et al. (“Hong”; Ex. 1005) and Lockwood. Ground 4 adds U.S. Patent Application Publication No. 2006/0053658 (“Voughlohn”; Ex. 1006) to the combination of Ground 3.

The Patent Office has already considered the prior art lululemon presented in its Petition. All four grounds in lululemon’s Petition involve Dua—a reference relied upon by the Examiner in a non-final rejection of claims 1–20 of the ’484 Patent. The Patent Office also previously considered Norton, which lululemon relies upon in Ground 2. And the other two references, Lockwood and Voughlohn, are cumulative of other prior art considered by the Examiner during prosecution. The Board should thus deny institution. *See* 35 U.S.C. § 325(d).

The Board should also deny institution because lululemon hasn’t shown that any of the prior art references, alone or in combination, teach or suggest a critical element of the claims: a “domed, three-dimensional structure” formed *during* the knitting process. By lululemon’s own admission, the prior art in Grounds 1 and 2 only discloses a domed, three-dimensional structure formed *after* the knitting process (i.e., formed using molds). And in Grounds 3 and 4, lululemon hasn’t met its burden to show that the Hong reference discloses anything other than a process for knitting two-dimensional patterns that are later assembled into three-dimensional shapes.

For these reasons and other reasons discussed below, Nike respectfully requests that the Board decline to institute review.

II. BACKGROUND

A. '484 Patent

The '484 Patent is directed to a footwear upper including “a knitted element formed from at least one mechanically manipulated yarn.” *See e.g.*, Ex. 1001, 3:10–13. The knitted element is “produced through a flat knitting process.” *Id.*, 4:28–31. The '484 Patent describes that the “[f]lat knitted element[] can be formed directly in three dimensional shapes.” *Id.*, 4:55–56; *see also id.*, 7:56–57 (“the flat knitting process may be utilized to form generally three-dimensional structures”). This can be achieved by, for example, “selectively placing multiple different yarns and/or stitch patterns at multiple different locations in the overall structure during the knitting process.” *Id.*, 4:60–5:1. This provides the benefits of reducing costs, increasing flexibility, and eliminating seams and sewing. *Id.*, 4:56–60.

Figure 10A of the '484 Patent, which is reproduced below, shows an embodiment of an upper having a knitted element with a “three-dimensional structure formed through a flat knitting process.” Ex. 1001, 10:18–20.



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

B. Relevant File History

During prosecution of the '484 Patent, the Examiner considered multiple references now asserted by lululemon. In fact, the primary reference that lululemon asserts for all four grounds in its Petition—U.S. Patent Application Publication No. 2005/0193592 to Dua (“Dua”)—was the basis of a non-final rejection for claims 1–20 of the '484 Patent. Ex. 2001, 7–11 [8/2/2016 Non-Final Rejection, 2–6] (rejecting

claims 1, 5–9, and 12–18 over Dua and rejecting claims 2–4, 10, 11, 19, and 20 over Dua in view of U.S. Patent No. 6,366,168 to Hatfield). In response to the Examiner’s rejection, Nike amended independent claims 1 and 12 (now claim 11) to add “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.” *Id.*, 33, 35 [1/30/2017 Amendment, 2, 4]. Nike further amended independent claim 10 to add that the “central portion” has “a domed, three-dimensional structure configured for extending over the top of a foot.” *Id.*, 34 [1/30/2017 Amendment, 3]. The Examiner allowed the claims as amended. *Id.*, 45 [6/5/2017 Notice of Allowability].

The Examiner also considered the Norton reference now asserted by lululemon in Ground 2. *Id.*, 20 [3/13/2014 IDS, U.S. Patents Item No. 72].

C. Alleged Prior Art References

1. Dua

Dua (Ex. 1004) is a patent application publication assigned to Nike. As noted above, the Examiner during prosecution of the ’484 Patent used Dua as a primary reference to reject all claims of the ’484 Patent. Ex. 2001, 7–11 [8/2/2016 Non-Final Rejection, 2–6]. Dua is directed to “an upper for an article of footwear, the upper incorporating a textile element formed with a knitting machine.” Ex. 1004, [0013]. Dua explains that the textile element may be formed through either warp knitting or

weft knitting processes. *Id.*; *see also id.*, [0044]–[0045]. An embodiment of Dua’s knit textile element is shown in Fig. 11 below.

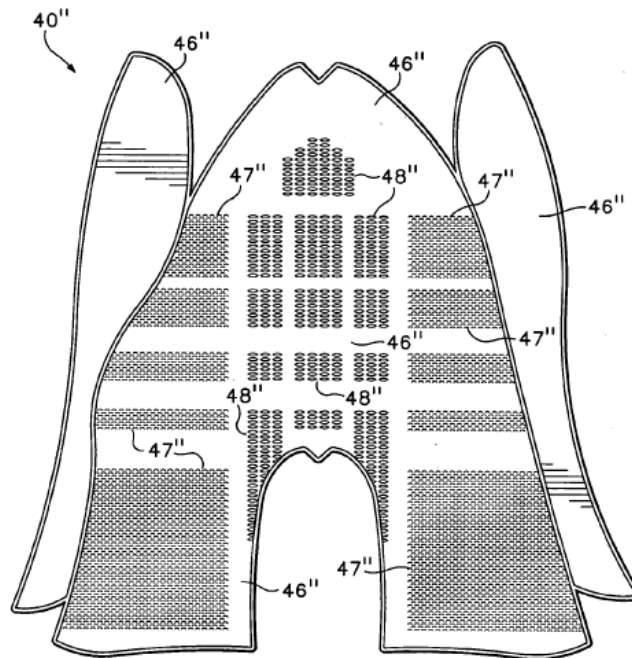


Figure 11

In certain embodiments, such as that shown in Fig. 11, Dua’s textile element may include different textures formed by varying either stitch type or yarn type in particular areas of the element. *See id.*, [0053]–[0056]. Dua explains that “[a]n advantage of this process is that various stitches may be incorporated into specific locations of textile element 40 to modify the physical properties or aesthetics of textile element 40.” *Id.*, [0060].

2. Lockwood

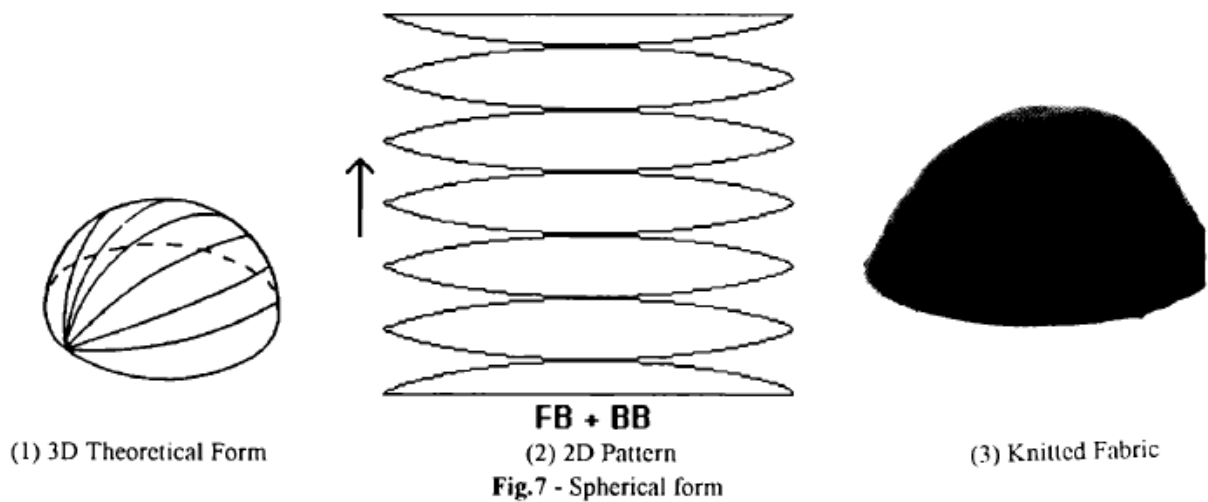
Lockwood (U.S. Pat. No. 3,641,603) is directed to methods of shaping plastic shoe uppers using molds. *See e.g.*, Ex. 1003, Abstract, 1:3–6, 2:22–31. Lockwood

describes that shaping may be effected using heat, pressure differential, or a combination of both. *Id.*, Abstract, 6:46–50, 7:72–8:7. In operation, one or more “plane rectangular piece of sheet material” are shaped by means of the mold. *See id.*, 6:51–54. During the molding process, “a central portion” of the blank is “deformed by the mold,” and the upper may “be severed from the rectangular sheet material,” such as “by means of a knife.” *Id.*, 6:54–61.

In one example, Lockwood discloses using a plastic shoe upper that includes “fibrous reinforcement.” *Id.*, 8:66–72; *see also id.*, 8:34–40, 9:8–10. The “fibrous reinforcement” may be a “woven, knitted or nonwoven sheet adhered to or embedded” in the plastic material. *Id.*

3. Hong

Hong is directed to using flat knitting machines to form textiles “to a particular shape or form.” Ex. 1005, 1. Hong explains that “the ability of knitting to shape of the flat knitting machines” “reduce[s] waste of expensive materials during cutting.” *Id.* Hong discloses techniques for knitting three-dimensional structures that involve “transferring” a “three-dimensional form” to a “two-dimensional pattern” for knitting on a flat-knitting machine. *Id.*, 3. For example, Hong discloses that “[t]o knit a spherical form with a radius R , it is necessary to start by transferring the three-dimensional concept to a two-dimensional pattern, as shown in Fig. 7.” *Id.*, 4. Hong’s Figure 7, titled “Spherical form,” is reproduced below.



From left to right, Figure 7 shows: the three-dimensional concept (“3D Theoretical Form”); the two-dimensional pattern (“2D Pattern”); and the final knitted fabric, after the two-dimensional pattern is assembled into shape (“Knitted Fabric”). *Id.*

4. Norton

Norton is directed to a “method of manufacturing a multi-layer, composite footwear upper having a three-dimensional geometry.” Ex. 1011, Abstract, 3:39–44. The Examiner considered Norton during prosecution of the ’484 Patent. Ex. 2001, 20 [3/13/2014 IDS, 7]. Norton’s method includes steps of “forming a substantially planar composite sheet from two or more layers, heating the composite sheet, and compression molding the composite sheet into the three-dimensional geometry of the footwear upper.” Ex. 1011, Abstract. Norton’s composite sheet includes two plastic layers with a third fabric layer sandwiched therebetween. *Id.*, 4:7–18. Norton describes that the fabric layer may be knitted. *Id.*

III. DEFINITION OF A PERSON OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Nike applies lululemon’s proposed level of skill in the art: a POSITA for the technology of the ’484 Patent would have had 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. Petition, 12–13. For individuals with different educational backgrounds, a person could still be of ordinary skill in the art provided that person’s additional experience compensates for any differences in that person’s education as stated above. *Id.* Nike reserves the right to further address lululemon’s formulation of a POSITA if trial is instituted.

IV. CLAIM CONSTRUCTION

lululemon inaccurately identifies a “dispute” about the meaning of “flat-knitted element . . . formed from . . . a flat-knitting process,” as recited in claim 1¹ of the ’484 Patent. *See* Petition, 13–14. No such dispute exists. lululemon instead appears to simply misunderstand Nike’s position.

lululemon asserts that the flat-knitted element, including the “domed, three-dimensional structure,” “must be formed from a flat-knitting process.” Petition, 13–

¹ Independent claim 10 recites the same limitation. Independent claim 11 recites a substantially identical limitation. Nike’s analysis applies equally to those claims.

14. Nike agrees. And according to lululemon, Nike “contends a flat-knitted element that is knitted in a flat configuration and then formed into a domed, three-dimensional configuration *after* it is knit” would fall within the scope of claim 1. Petition, 13. lululemon has it wrong: Nike has never argued claim 1 of the ’484 Patent covers a flat knitted element with a three-dimensional structure formed only *after* the knitting process is complete. And Nike does not take that position here.

This misunderstanding has a significant effect on lululemon’s Petition. As lululemon explains, Grounds 1 and 2 are “based on Patent Owner’s interpretation” of claim 1. *Id.*, 14. As a result, lululemon asserts prior art combinations in Grounds 1 and 2 that allegedly disclose a domed, three-dimensional structure formed only *after* the flat-knitting process is complete. *Id.* In both grounds, lululemon relies on Lockwood for this limitation, asserting that Lockwood discloses “deform[ing]” a thermoplastic upper by placing the upper “on a mold.” Petition, 16–17 (citing Ex. 1003, 2:22–30, 8:34–39, 8:66–69). lululemon does not allege that either prior art combination discloses a “domed, three-dimensional structure” formed *during* the flat-knitting process. And because the claims undisputedly require a domed, three-dimensional structure formed during the flat-knitting process, Grounds 1 and 2 of lululemon’s Petition necessarily fail.

V. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER 35 U.S.C. § 325(d)

The Board uses a two-part framework for assessing discretionary denial under 35 U.S.C. § 325(d). First, the Board considers “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments were previously presented to the Office.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6, 8 (PTAB Feb. 13, 2020) (precedential). Second, if the Board answers the first question in the affirmative, it then asks, “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims.” In applying the *Advanced Bionics* framework, the Board considers the non-exclusive *Becton, Dickinson* factors:

- a) the similarities and material differences between the asserted art and the prior art involved during examination;
- b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;

- e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Advanced Bionics, LLC, IPR2019-01469, Paper 6, 9, citing *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph). The Board considers *Becton, Dickinson* factors (a), (b), and (d) during the first step of the *Advanced Bionics* framework, and factors (c), (e), and (f) during the second step of the framework. *Advanced Bionics, LLC*, IPR2019-01469, Paper 6, 9.

A. *Advanced Bionics* step 1: The same art, or substantially the same art, was previously before the Office during prosecution

The Board should deny institution of lululemon’s Petition because all four of lululemon’s grounds involve the “same or substantially the same prior art or arguments previously presented to the Office.” *See* 35 U.S.C. § 325(d). The similarities between lululemon’s asserted prior art and the prior art previously before the Office is remarkable. In all four grounds, lululemon relies on Dua—a reference relied upon by the Examiner in a non-final rejection during prosecution of the ’484 Patent. Ex. 2001, 7–11. lululemon’s Ground 2 also relies on Norton, another reference which the Office considered during prosecution of the ’484 Patent. *Id.*, 20.

And when lululemon relies on other prior art references (*e.g.*, Lockwood), lululemon relies on those references for teachings that are entirely cumulative with Dua, Norton, or other references considered by the Office during prosecution of the '484 Patent.

Becton, Dickinson factor (a) takes into account “the similarities and material differences between the asserted art and the prior art involved during examination.” Each of lululemon’s grounds involve Dua, which the Examiner used as a primary reference to reject every pending claim in the application that led to the '484 Patent. Ex. 2001, 7–11. The Examiner mapped each element of then-pending claim 1 (shown below) to Dua.

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 a 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.

Nike ultimately amended these claims and overcame the Examiner’s Dua-based rejection.

Here, the Dua reference is central to all lululemon’s grounds of invalidity. Dua is the only reference in lululemon’s Grounds 1 and 2 that discloses a knitting process for forming footwear uppers. *Compare* Petition, 17 (“Dua ... discloses ... uppers produced using a flat-knitting process”) *with* Petition, 15–16 (“Lockwood relates to ... ‘preforming shoe uppers ... using molds of a novel shape.’”) *and* Petition, 36–37 (“Norton discloses ... ‘manufacturing a multi-layer composite footwear upper’ ... ‘compris[ing] a first layer [] of thermoplastic foam, ... a second layer [] of thermoplastic urethane, ... [and] a third layer [] of fabric ... interposed between the first layer [] and the second layer’” by molding). For Grounds 3 and 4, lululemon argues that Dua “discloses *every element*” of the independent claims “except for the central portion having a domed, three-dimensional structure.” Petition, 41 (emphasis added).² In all four grounds, lululemon is thus using Dua in a substantially similar manner to how Dua was used during prosecution.

Becton, Dickinson factor (b) takes into account “the cumulative nature of the asserted art and the prior art evaluated during examination.” lululemon’s Ground 1 combines Dua with Lockwood. Ground 2 adds Norton (also considered by the Examiner) to that combination. And although Lockwood was not cited during prosecution, Lockwood and Norton disclose very similar technologies, i.e.,

² lululemon’s Ground 4 challenges only dependent claims, relying on Dua for the same aspects of the corresponding independent claims.

composite sheets of plastic with embedded knitted elements that are shaped into footwear uppers using molding steps. For example, lululemon explains that “Lockwood relates to ... ‘preforming shoe uppers ... using molds of a novel shape.’” Petition, 15–16 (citing Ex. 1003, Abstract). And that the material used to form Lockwood’s upper can include a “fibrous reinforcement” that “can be a sheet of . . . ‘knitted textile fabric[]’ that is adhered to or embedded in a thermoplastic material.” *Id.*, 17 (citing Ex. 1003, 8:34–39). lululemon also explains that “Norton discloses ... ‘manufacturing a multi-layer composite footwear upper’” “in [a] mold.” *Id.*, 36–37 (citing Ex. 1011, Abstract, Fig. 3). And that Norton’s “composite sheet” comprises “a first layer [] of thermoplastic foam,” “a second layer [] of thermoplastic urethane,” and “a third layer [] of fabric [] interposed between the first layer [] and the second layer.” *Id.* (citing Ex. 1003, 4:7–13). Thus, the art that lululemon now asserts for Grounds 1 and 2 is cumulative of what was previously considered by the Examiner.

lululemon’s Ground 3 combines Dua with Hong and Lockwood. lululemon introduces Lockwood merely to demonstrate that it was known to have “a domed, three-dimensional structure in the claimed location,” i.e., the “central portion” of the upper. *Id.*, 41. lululemon ostensibly adds Lockwood to the combination of Ground 3 only to avoid discretionary denial under 35 U.S.C. § 325(d), as the teaching for which lululemon relies on Lockwood is already taught by Dua. Dua’s knitted upper, when incorporated into an article of footwear, includes a “domed, three-dimensional

structure” in the claimed location. *E.g.*, Ex. 2003, Fig. 12. lululemon introduces Hong as purportedly disclosing “flat knitting three-dimensional structures.” Petition, 41. But as addressed in Section IX.A, Hong teaches flat-knitting two-dimensional patterns which are then turned into three-dimensional shapes through post-knitting steps. Ex. 2002, ¶¶42–43. This is much like the way that Dua’s knitted element is knit in a two-dimensional form (*e.g.*, Ex. 1004, Fig. 8, item 40) and then converted into a three-dimensional shape when incorporated into an article of footwear (Ex. 1004, [0049], Fig. 1, item 10). Thus, Hong’s teachings are cumulative of Dua’s teachings and of what the Examiner already considered and used to reject the claims during examination. Ground 4 only addresses dependent claims. Ground 4 adds Voughlohn for a narrow teaching—“one or more loops of unitary construction with [the] first layer of an upper such as Dua’s upper.” Petition, 74. lululemon points to Voughlohn’s “lace receivers,” i.e., “fabric rings that are attached to or integrated into a footwear upper.” *Id.*, 75 (citing Ex. 1006, [0377]–[0379]). But Hatfield, which the Examiner used as a secondary reference to reject claims 2–4, 10, 11, 19, and 20 of the ’484 Patent during prosecution, also discloses similar looping features. *E.g.*, Ex. 2010, Figs. 1–2, item 36.

Factor (c) concerns “the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art.” As discussed above, Dua is the only reference in lululemon’s Grounds 1 and 2 that

discloses a knitting process for forming footwear uppers. And as further discussed above for Grounds 3 and 4, lululemon argues that Dua “discloses every element of claim 1 except for the central portion having a domed, three-dimensional structure.” Petition, 41. Thus, there is substantial overlap between the arguments lululemon now advances for Dua and how Dua was used to reject the claims during prosecution.

B. *Advanced Bionics* Step 2: lululemon does not demonstrate that the Office erred

lululemon fails to make any argument or evidentiary showing related to *Becton, Dickinson* factors (c), (e), and (f). For factor (c), lululemon never addresses “the extent to which [Dua] was evaluated during prosecution.” lululemon merely states that Dua “was considered during examination.” Petition, 80. lululemon omits the fact that the Examiner used Dua as a primary reference to reject all the pending claims in the application. Ex. 2001, 7–11. For factors (e) and (f), lululemon never asserts that the Office erred during examination, nor does it dispute the previous determination. Instead, lululemon conclusively asserts that the Board should not exercise discretionary denial because the Office did not previously consider Hong or Lockwood. Petition, 79–80. But for the reasons discussed above, the teachings on which lululemon relies in Hong and Lockwood are entirely cumulative with teachings considered by the Examiner.

**VI. LULULEMON HAS NOT ESTABLISHED A REASONABLE
LIKELIHOOD OF PREVAILING FOR ANY CHALLENGED CLAIM**

lululemon bears the burden on institution of “demonstrating a reasonable likelihood that it will prevail in showing the unpatentability of at least one claim.” *SMIC, Ams. v. Innovative Foundry Techs., LLC*, IPR2020-00837, Paper 13, 13–14 (PTAB Oct. 9, 2020) (citing 35 U.S.C. §§ 314(a) and 312(a)(3)). In making this showing, lululemon’s Petition must identify “the evidence that supports the grounds for the challenge to each claim.”” *Id.* lululemon has not met that burden here.

In all four grounds, lululemon alleges invalidity under 35 U.S.C. § 103(a), i.e., that the differences between the claims of the ’484 Patent and the prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made” to the POSITA. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). To prevail, lululemon must “place themselves in the minds of those of ordinary skill in the relevant art *at the time the invention was made*, to determine whether that which is now plainly at hand would have been obvious at such earlier time.” *Millennium Pharms., Inc. v. Sandoz Inc.*, 862 F.3d 1356, 1367 (Fed. Cir. 2017) (emphasis added). lululemon must articulate specific reasoning and cannot rely on conclusory statements or attorney argument. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362–63 (Fed. Cir. 2016); *Facebook, Inc. v. Windy City Innovations, LLC*,

973 F.3d 1321, 1342 (Fed. Cir. 2020) (affirming nonobviousness where petitioner’s challenge was “based on attorney argument rather than evidence in the record”).

lululemon also must prove that a POSITA would have been motivated to modify or combine teachings from different references. *KSR*, 550 U.S. at 418; *see also In re Stepan Co.*, 868 F.3d 1342, 1345–46 (Fed. Cir. 2017). “[I]t is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Id.* In addition to motivation to combine, lululemon must show a reasonable expectation of success in making a prior art combination. *See Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016).

Here, lululemon has not shown a reasonable likelihood of success for any challenged claim under any ground of unpatentability as discussed in detail below. Accordingly, the Board should deny institution.

VII. GROUND 1: LOCKWOOD IN VIEW OF DUA DOES NOT RENDER OBVIOUS CLAIMS 1 AND 5–9

lululemon fails to show a reasonable likelihood of proving that Lockwood in view of Dua renders obvious any challenged claim in Ground 1. lululemon falls short of its burden for three reasons. First, as discussed above in Section IV, the Lockwood-Dua combination does not disclose or suggest a “domed, three-dimensional structure” that is formed in a flat-knitting process. At best, this

combination teaches a domed, three-dimensional structure formed *after* the flat-knitting process, by placing the upper on a mold. Second, although Lockwood discloses a knitted textile “reinforcement” within its plastic upper—Lockwood does not disclose or suggest a flat-knitted textile element with the particular shape and configuration recited in claim 1. Third, a POSITA would not have been motivated to combine Lockwood and Dua. The stated benefits resulting from Dua’s knitted upper would be lost when combined with Lockwood’s teachings of a molded plastic upper.

A. The Lockwood-Dua combination does not disclose or suggest that the “domed, three-dimensional structure” of the “flat-knitted element” is “formed ... in a flat-knitting process,” as recited in claim 1

As described above in Section IV, the parties agree that the “domed, three-dimensional structure” of the “flat-knitted element” must be “formed ... in a flat-knitting process,” as recited in claim 1. For the reasons discussed below, and as lululemon admits (Petition, 14), the Lockwood-Dua combination fails to teach this limitation.

Lockwood does not disclose or suggest an upper having a “domed, three-dimensional structure” formed in a knitting process. In fact, Lockwood does not disclose a knitting process at all. Lockwood discloses shaping an upper using a mold. Ex. 1003, Abstract, 1:3–6, 2:22–31, 6:46–54, 7:72–8:7.

Combining Lockwood with Dua does not cure this deficiency. lululemon does not allege that Dua teaches or suggests a “domed, three-dimensional structure.” lululemon combines Dua with Lockwood only to substitute Dua’s “flat knit” element for Lockwood’s “fibrous reinforcement.” *See* Petition, 18 (“Lockwood, thus, discloses every element of claim 1 except for the knitted element being *flat knit*.”).

Thus, lululemon fails to show that Lockwood, in view of Dua, renders obvious any challenged claim in Ground 1.

B. The Lockwood-Dua combination does not teach the arrangement and configuration of the knitted element within its upper

lululemon relies exclusively on Lockwood as teaching a knitted element present in the central portion of the upper that forms the domed, three-dimensional structure extending over the top of the foot. *See* Petition, 18 But Lockwood only mentions a knitted element once, when it discloses that the upper may include a “fibrous reinforcement” that may be “knitted.” Ex. 1003, 8:66–74. Lockwood never describes the location or configuration of this “fibrous reinforcement.” And none of Lockwood’s figures depict the fibrous reinforcement on or within the “extensible material” forming the upper. Yet lululemon asks the Board to simply assume that the knitted element has the configuration and arrangement recited in claim 1.

For example, to support its argument that Lockwood teaches a knitted element with “a central portion having a domed, three dimensional structure configured for

extending over the top of a foot,” lululemon points to Lockwood’s disclosure of forming *uppers* with “molds having a vamp cone protuberance positioned around the median line.” Petition, 25 (quoting Ex. 1003, 2:60–64). lululemon further points to Lockwood’s Figure 35 showing a mold for making an *upper* with a central domed portion. *Id.*, 25–26. From these disclosures, lululemon, and its expert—Dr. Brookstein—assume that Lockwood’s knitted element must also be present in the portion of the upper that forms the domed, three-dimensional structure extending over the top of the foot. *Id.* (citing Ex. 1002, ¶67). None of the cited disclosures address whether Lockwood’s fibrous reinforcement has the claimed central domed portion. For the same reasons, lululemon has not met its burden to show that Lockwood’s fibrous reinforcement includes “a first side portion” or “a second side portion” formed “of unitary construction” with “a central portion.”

Thus, lululemon fails to show that Lockwood, in view of Dua, renders obvious any challenged claim in Ground 1.

C. A POSITA would have had no motivation to combine Lockwood and Dua

lululemon argues that a POSITA “would have been motivated for multiple reasons to use a flat-knitted element like Dua’s for the knitted element in Lockwood’s upper.” Petition, 18–19. But none of lululemon’s arguments hold water.

First, lululemon argues that a POSITA would have been motivated to combine Lockwood and Dua because they are in the same field of endeavor (manufacturing shoe uppers) and “address the same problem” (reducing cost and increasing efficiency in manufacturing). Petition, 19. But these similarities are superficial and conclusory. Lockwood is directed to a process for molding *plastic* uppers, whereas Dua is directed to a method for *knitting* footwear uppers. Ex. 2002, ¶34. As a matter of law, conclusory statements of general similarity are alone insufficient to support motivation to combine. *William Wesley Carnes, Sr., Inc. v. Seaboard Int’l Inc.*, IPR2019-00133, Paper 10, 17–18 (PTAB May 8, 2019) (rejecting Petitioner’s conclusory argument that references solving similar problems in oil and gas drilling provided motivation to combine). And the opinions of lululemon’s expert, Dr. Brookstein, are similarly conclusory and unsupported and thus entitled to no weight. Ex. 1002, ¶55; *see One World Techs., Inc. v. Chevron (HK) Ltd.*, PGR2020-00059, 2020 WL 7222691, at *16 (PTAB Dec. 7, 2020).

Second, lululemon argues that a POSITA would have been motivated to modify Lockwood with Dua because of the “benefits of flat knitting a knitted element of an upper.” Petition, 19. lululemon argues that the capability of flat knitting to produce unitary elements that may have “various textures, different properties, or different yarn types” would benefit Lockwood. This is wrong. Lockwood discloses a plastic upper that is molded into shape. Ex. 1003, Abstract,

1:3–6, 2:22–31, 6:46–54, 7:72–8:7, Fig. 35. Lockwood discloses that the upper may be molded into shape with or without the inclusion of a fibrous reinforcement. *Id.*, 8:34–40, 8:66–72, 9:8–10. Indeed, Lockwood discloses that the plastic upper “preferably does not include fibrous reinforcement.” *Id.* In other words, the specific structural qualities of the fibrous reinforcement, i.e., knitted element, do not impact the molded upper. Ex. 2002, ¶¶35–36. Any benefits that derive from the unitary construction of or varying textures in Dua’s textile element would be lost in Lockwood’s upper. *Id.*, ¶¶35–37. Thus, a POSITA would not have been motivated to combine Dua’s flat knitted element with Lockwood’s upper.

Third, lululemon argues that a POSITA would have been motivated “to use a flat knitting machine to produce Lockwood’s knitted element” as those machines provide “vast knitting design options and ease of use.” Petition, 20. lululemon explains that a POSITA would have known that such machines “could easily be programmed to create a knitted element with specific features and shape.” *Id.* But Lockwood’s system takes a “blank” in the form of a “plane rectangular piece of sheet material,” and deforms the blank using a mold. lululemon has not shown that any benefits of flat knitting would benefit Lockwood’s upper. Ex. 2002, ¶38.

Fourth, lululemon argues that a POSITA would have viewed flat knitting “as one of a finite number of options for producing Lockwood’s knitted element.” Petition, 20. But the proper analysis is not whether a POSITA *could* have combined

Dua’s flat-knitted element with Lockwood’s upper: The proper analysis is whether a POSITA *would* have been motivated to make the combination to arrive at the claimed invention. *See Nautilus Hyosung Inc. v. Diebold Self-service Sys.*, IPR2016-00633, Paper 9, 21 (PTAB Aug. 22, 2016); *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016) (“The real question is whether that skilled artisan would have plucked one reference out of the sea of prior art.”). lululemon has not shown that here. Ex. 2002, ¶39.

For at least these reasons, lululemon has not shown that a POSITA would have been motivated to combine Lockwood and Dua to arrive at the claimed invention.

VIII. GROUND 2: LOCKWOOD IN VIEW OF DUA AND NORTON DOES NOT RENDER OBVIOUS CLAIMS 1 AND 5–9

lululemon fails to show a reasonable likelihood of proving that Lockwood in view of Dua and Norton renders obvious any challenged claim in Ground 2. lululemon’s Ground 2 is almost identical to Ground 1 (Lockwood in view of Dua). In Ground 2, lululemon “adds Norton ... in the event the disclosures of Lockwood and Dua” are “insufficient” to show “limitations generally relating to the size and structure of Lockwood’s knitted reinforcement layer.” Petition, 36. As lululemon states, “Norton was cited during prosecution of the ’484 Patent.” *Id.*

Similar to Lockwood, Norton discloses a molded composite upper having two plastic layers sandwiching a third, coextensive, fabric layer therebetween. Ex. 1011,

4:4–18. lululemon proposes combining Norton’s disclosure of a knitted element that “is coextensive with the other extensible material sheets that form a composite upper” with Lockwood. Petition, 38. But even if Lockwood’s fibrous reinforcement, i.e., knitted element, was coextensive with the “extensible material,” this additional modification of Lockwood does not cure the deficiencies discussed in Sections VII.A and VII.C above.

For at least these reasons, lululemon fails to show that Lockwood, in view of Dua and Norton, renders obvious any challenged claim in Ground 2.

IX. GROUND 3: DUA IN VIEW OF HONG AND LOCKWOOD DOES NOT RENDER OBVIOUS CLAIMS 1–19

For two reasons, lululemon fails to show a reasonable likelihood that Lockwood in view of Dua renders obvious any challenged claim in Ground 3. First, 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 1, 10, and 11. Second, for independent claim 10, lululemon fails to show that the Dua-Hong-Lockwood combination teaches or suggests “the second layer being flat-knitted with the first layer at opposite ends of the second layer to form an overlapped loop.”

For at least these reasons, lululemon fails to show that Dua, in view of Hong and Lockwood, renders obvious any challenged claim in Ground 3.

A. The Dua-Hong-Lockwood combination does not disclose or suggest that the “domed, three-dimensional structure” of the “flat-knitted element” is “formed ... in a flat-knitting process,” as recited in claims 1, 10, and 11

As described above in Section IV, the parties agree that the “domed, three-dimensional structure” of the “flat-knitted element” must be “formed ... in a flat-knitting process,” as recited in claims 1, 10, and 11. For the reasons discussed below, lululemon fails to show that the Dua-Hong-Lockwood combination teaches or suggests this limitation.

lululemon’s Ground 3 rests on the assumption that Hong discloses a method of forming finished, three-dimensional knitted fabrics *during* a knitting process. *Id.* 47 (citing Ex. 1002, ¶100) (claiming Hong shows that “flat knitting a three-dimensional structure was well-known and common.”). But lululemon has not shown that Hong discloses forming a three-dimensional knitted fabric *during* a knitting process.³ lululemon relies on Hong’s disclosure of “using [] flat knitting machines” to “knit fully fashioned garments.” Ex. 1005, 1. But Hong discloses techniques for knitting three-dimensional structures in which a desired “three-dimensional form” is transferred to a knit-to-shape “two-dimensional pattern[.]” Ex.

³ In its Petition, lululemon mischaracterizes a statement that Nike Innovation C.V., a Nike, Inc. subsidiary, made during prosecution of a foreign patent application. Petition, 10–11. In that foreign prosecution, Nike only acknowledged that certain prior art documents generally disclose three-dimensional knitted textiles “formed through flat knitting.” Ex. 1017, 8. This includes achieving three-dimensional structures through post-knitting processes.

1005, 3; Ex. 2002, ¶¶42–43. For example, Hong discloses that “[t]o knit a spherical form with a radius R , it is necessary to start by transferring the three-dimensional concept to a two-dimensional pattern, as shown in Fig. 7.” *Id.*, 4. Thus, 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 without the need for any cutting. Ex. 2002, ¶¶42–43. As Dr. Pastore explains, the two-dimensional patterns shown in Hong’s Figures 3(2)–9(2) are insufficient to form the geometries shown in corresponding Figures 3(3)–9(3) during the flat-knitting process. *Id.*, ¶¶44–47.

For support, lululemon and Dr. Brookstein point to Hong’s disclosures about the benefits of knitting “fully fashioned garments,” i.e., reducing waste and lowering labor costs. Petition, 48 (citing Ex. 1002, ¶102). But these statements don’t support lululemon’s interpretation of Hong. Hong’s method of using two-dimensional patterns configured to be assembled into a three-dimensional shape will still provide these benefits.

As a result, the combination of Dua with Hong and Lockwood does not disclose or suggest forming the “domed, three-dimensional structure” of the “flat-knitted element” *during* the “flat-knitting process.” Thus, lululemon fails to show that Dua, in view of Hong and Lockwood, renders obvious any challenged claim in Ground 3.

B. The Dua-Hong-Lockwood combination fails to disclose or suggest “the second layer being flat-knitted with the first layer at opposite ends of the second layer to form an overlapped loop,” as recited by claim 10

Dua in view of Hong and Lockwood does not disclose or suggest “the second layer being flat-knitted with the first layer at opposite ends of the second layer to form an overlapped loop,” as recited by claim 10.

lululemon contends that Dua discloses this limitation. As purported support, lululemon argues that “Dua discloses textile element 40 may include laces and be ‘a single material element that is formed to exhibit a *unitary (i.e., one-piece) construction.*’” Petition, 56 (citing Ex. 1004, [0037]). But Dua doesn’t say that “textile element 40” includes laces. Ex. 1004, [0037]. Instead, Dua discloses that upper 30, of which textile element 40 forms a part, may include laces. lululemon also points to Dua’s Figure 13 showing lace loops and concludes that the loops “are formed as a second layer of unitary construction with the first layer.” Petition, 56. There is no support for lululemon’s argument in Dua. The corresponding text for Figure 13 in Dua’s detailed description does not even mention laces or loops. lululemon again relies on Dr. Brookstein’s declaration to show that Dua’s Figure 13 discloses or suggests this limitation. But Dr. Brookstein’s declaration is a verbatim recitation of lululemon’s argument in the petition, without any further explanation

or citation. Thus, Dr. Brookstein’s opinion should be given no weight. *One World Techs., Inc.*, 2020 WL 7222691, at *16.

lululemon further argues that Hong “confirms that such loops were known and could be produced as a unitary structure with a knitted element.” Petition, 57 (citing Ex. 2005, 1). The Hong reference not only fails to disclose flat-knitting a second layer with a first layer to form an overlapped loop, but it also is not clear that Hong is referring to the same kind of loops that claim 10 recites. For example, the term “loops” is used throughout Hong to refer to the “looping” process involved in forming a knit. *See generally* Ex. 1005.

For at least these reasons, lululemon fails to show that Dua, in view of Hong and Lockwood, renders obvious claims 10.

X. GROUND 4: DUA IN VIEW OF HONG, LOCKWOOD, AND VOUGHLOHN DOES NOT RENDER OBVIOUS CLAIMS 2–4, 18, AND 19

Claims 2–4 and 18 depend from independent claims 1 and 11. For at least the reasons discussed above with respect to claims 1 and 11 in Ground 3, lululemon fails to show that Dua, in view of Hong, Lockwood, and Voughlohn, renders obvious any challenged claim in Ground 4.

XI. CONCLUSION

For the reasons set forth above, Nike respectfully requests that the Board deny institution of the Petition for all Challenged Claims of the ’484 Patent.

Dated: January 3, 2024

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CERTIFICATE OF WORD COUNT

Under the provisions of 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the Microsoft Office word count including all footnotes for the foregoing Patent Owner's Preliminary Response, excluding the table of contents, table of authorities, certificate of word count, appendix and certificate of service, totals 6,571 words, which is less than the 14,000 words allowed under 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies service on the Petitioner, pursuant to 37 C.F.R. § 42.6(e) and by agreement of counsel, by electronic (e-mail) delivery of a true copy of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE**, which was served on January 3, 2024 to the following Counsel for Petitioner via e-mail:

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