

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 SUR-REPLY

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	GROUND 3: DUA IN VIEW OF HONG AND LOCKWOOD DOES NOT RENDER OBVIOUS ANY CHALLENGED CLAIM	3
A.	lululemon Fails to Show that Hong Teaches or Suggests Flat- Knitting Three-Dimensional Structures During the Knitting Process	3
B.	Other Arguments Advanced by lululemon	9
1.	The '484 Patent's Disclosure is Enabling	9
2.	No Reasonable Expectation of Success	9
C.	lululemon Fails to Show that Dua in View of Hong and Lockwood Teaches or Suggests Knitting a “Domed, Three- Dimensional Structure” With Flat First and Second “Side Portion[s]”	11
D.	lululemon Fails to Show that Either Dua or Hong Teaches or Suggests the “Loop” Limitations of Claims 2–4, 10, or 18–19	13
III.	GROUND 4: DUA IN VIEW OF HONG, LOCKWOOD, AND VOUGHLOHN DOES NOT RENDER OBVIOUS ANY OF CLAIMS 2–4, 18, AND 19	15
IV.	CONCLUSION.....	16

TABLE OF AUTHORITIES

<u>Cases</u>	<u>Page(s)</u>
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	15
<i>Cuozzo Speed Techs. v. Lee</i> , 579 U.S. 261 (2018)	9, 13
<i>Facebook, Inc. v. Windy City Innovations, LLC</i> , 973 F.3d 1321(Fed. Cir. 2020)	12
<i>St. Jude Med., Inc. v. Access Closure, Inc.</i> , 729 F.3d 1369 (Fed. Cir. 2013)	14
 <u>Statutes & Regulations</u>	
35 U.S.C. § 112	9

EXHIBITS

Exhibit No.	Description
2001	File History of U.S. Patent No. 9,730,484 (Excerpted)
2002	Declaration of Dr. Christopher M. Pastore dated January 3, 2024
2003	Declaration of Dr. Christopher M. Pastore dated June 18, 2024
2004	Spencer, <i>Knitting Technology</i> (2001) (Excerpted)
2005	06-07-2024 Deposition Transcript of Dr. David S. Brookstein

I. INTRODUCTION

Neither the Petition nor Petitioner's Reply to Patent Owner's Response (Paper 22; "Reply") demonstrates by a preponderance of the evidence that any Challenged Claim of the '484 patent is unpatentable.

In its Reply, lululemon concedes that Grounds 1 and 2 are irrelevant in light of the Board's claim construction requiring the "domed, three-dimensional structure" be formed during the flat-knitting process, and not after. Only Grounds 3 and 4 remain in this proceeding.

As to Ground 3, lululemon still fails to show that the combination of Hong, Dua, and Lockwood renders any of the challenged claims invalid. This is true for three reasons. First, lululemon fails to show that Hong teaches or suggests forming a "domed, three-dimensional structure" *during* a flat-knitting process. Hong merely discloses a process for knitting two-dimensional patterns that are later assembled into three-dimensional structures. Nike's expert—Dr. Pastore—opined that most of Hong's working examples *couldn't possibly* be formed during the knitting process. Neither lululemon nor its expert—Dr. Brookstein—rebut this opinion.¹ Nor could they, because Dr. Brookstein admitted he failed to *even consider* half of Hong's five-page disclosure. This failure undermines lululemon's arguments for all Challenged

¹ lululemon did not offer a Reply expert declaration with its Petitioner's Reply.

Claims. Second, even if Hong *did* disclose forming three-dimensional structures during the knitting process, lululemon has failed to show that Hong teaches or suggests forming the specific three-dimensional structure recited by independent claims 1 and 11 of the '484 patent. The claims recite a “central portion having a domed, three-dimensional structure” flanked by first and second *flat* side portions. As Dr. Pastore explains, a POSITA attempting to modify Hong to achieve this structure would not have reasonably expected success. This failure undermines lululemon’s arguments for claims 1–9 and 11–19. Third, with respect to claims 2–4, 10, and 18–19, lululemon fails to show that Dua and/or Hong teach or suggest the recited “loop” limitations.

As to Ground 4, lululemon hasn’t shown that the addition of Voughlohn cures any of the deficiencies in Ground 3. lululemon relies on Voughlohn solely for the “loop” limitations recited in claims 2–4, 10, and 18–19. But Voughlohn does not teach or suggest (alone or in combination with the other references) the formation of loops that are *knitted together* with the claimed “flat-knitted element.”

For at least these reasons, and those discussed in Nike’s Response, lululemon has not carried its burden of proving by a preponderance of the evidence that any Challenged Claim of the '484 patent is unpatentable.

II. GROUND 3: DUA IN VIEW OF HONG AND LOCKWOOD DOES NOT RENDER OBVIOUS ANY CHALLENGED CLAIM

lululemon's Ground 3 fails for three independent reasons. First, lululemon fails to show that Hong teaches or suggests forming three-dimensional knitted structures *during* the knitting process, as recited by each independent claim. Hong's disclosure is dedicated to a process for knitting two-dimensional patterns that are later assembled into three-dimensional structures through post-knitting processes. Second, lululemon fails to show that Hong discloses the specific three-dimensional knitted structure recited in independent claims 1 and 11 of the '484 patent, i.e., knitting a "domed, three-dimensional structure" flanked by flat first and second "side portion[s]." And lululemon fails to show that a POSITA would have reasonably expected to succeed in modifying Hong's structures to achieve the claimed configuration. Third, lululemon fails to show that Dua and/or Hong teach or suggest the "loop" limitations recited in claims 2–4, 10, and 18–19.

A. lululemon Fails to Show that Hong Teaches or Suggests Flat-Knitting Three-Dimensional Structures During the Knitting Process

lululemon fails to show that Hong teaches or suggests forming three-dimensional knitted structures *during* the knitting process, as recited by each independent claim. Hong discloses knitting two-dimensional knit-to-shape patterns that are then formed into three-dimensional shapes using post-processing steps.

Response at 20–27. For the reasons discussed in Nike’s Response and for those discussed below, nothing in lululemon’s Petition or Reply establishes otherwise.

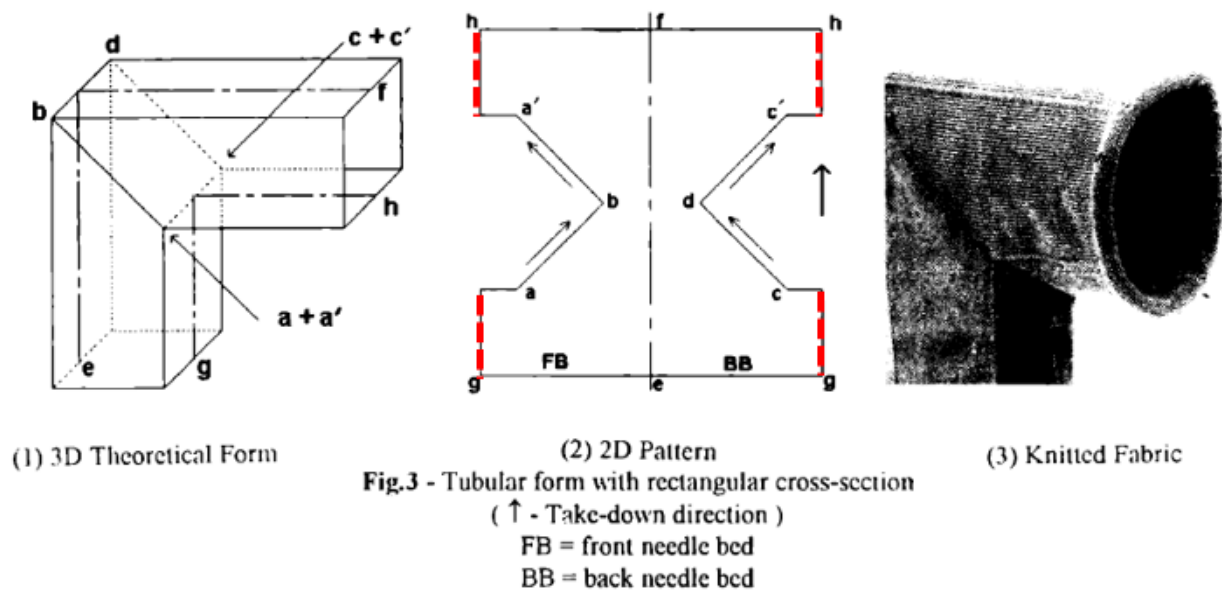
First, lululemon’s reliance on Hong’s title or other short snips from Hong discussing three-dimensional fabrics is unavailing. *See* Reply at 9–11. These three-dimensional fabrics are not formed *during* knitting. Response at 21–23. Hong discloses that the knitting process, i.e., the “fashioning operation,” is “only determined according to two-dimensional patterns.” Response at 22 (citing Ex. 1005 at 3).

Second, lululemon’s conclusory argument that it would have been “unremarkable in 1994 to knit two-dimensional fabrics and then process them into a three-dimensional article” is wrong. Reply at 9. As Nike’s expert testified, knitting-to-shape complicated two-dimensional patterns, like those shown in Hong’s Figures 3(2)–9(2), was a “cutting-edge developing technology in the mid-1990’s.” Ex. 2003 at ¶¶23–24; Response at 3–4. Dr. Brookstein does not rebut this.

Third, Dr. Pastore’s testimony that Shima Seiki machines from the 1990’s had the capability to flat knit three-dimensional structures is irrelevant. Reply at 10. The question is not whether knitting machines that pre-date the ’484 patent had the *capability* to knit three-dimensional structures; the question is whether those machines were *actually being used in that way* prior to the priority date of the ’484 patent. lululemon has not shown that they were.

Fourth, the benefits Hong espouses—i.e., overcoming fabric waste and diminishing labor cost—are benefits of knitting-to-shape two-dimensional patterns. Response at 25–26; Reply at 10. Hong’s recitation of these benefits does not establish that Hong creates three-dimensional structures *during* the knitting process.

Fifth, unrebutted expert testimony shows that it would have been impossible to knit most of the “Knitted Fabrics” shown in Figures 3(3)–9(3) of Hong’s working examples *during* the knitting process. Response at 23–24, 28–29. As Dr. Pastore explained, it would not have been possible to connect right and left edges, like “h” and “g” outlined in red in Figure 3(2) below, during a flat-knitting process. Ex. 2003 at ¶51.



This same issue applies to Hong's working examples of Figures 5 and 6. For example, the edges (outlined in red below) in Hong's Figure 5 could not have been joined during a flat-knitting process:

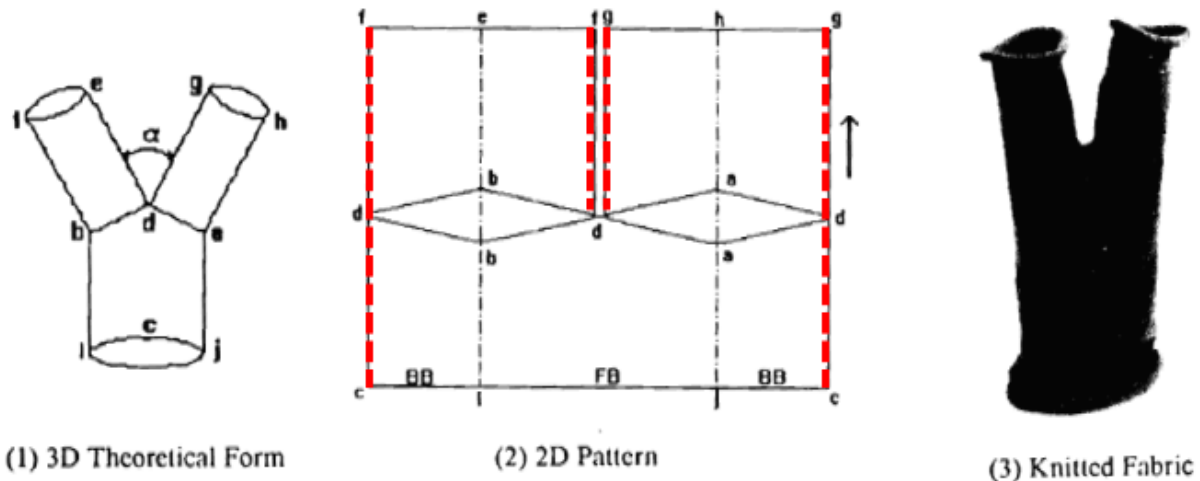


Fig.5 - Tubular form : one main tube connected to two smaller tubes

Similar edges in Hong's Figure 6 also could not have been joined during the knitting process. *See* Ex. 1005 at Fig. 6.

lululemon points to Hong's disclosure that, "[d]uring knitting, the two smaller tubes [of Figures 5 and 6] are separately knitted with two cam systems." Reply at 10 (citing Ex. 1005 at 4), 12–13. According to lululemon, this explains "how the flat knitting machine closes" the "tubes" in Figures 5 and 6. *Id.* But the use of two cam systems only means that two separate cam systems were used to knit the two-dimensional pattern shown in Figures 5(2) and 6(2), it doesn't mean that the tubes shown in Figures 5(3) and 6(3) were closed during the knitting process. *See* Ex. 2003

at ¶¶50–51. lululemon also cites portions of Dr. Brookstein’s deposition transcript as alleged support, but none of these citations relate to whether a cam system could have closed the tubes shown in Hong’s working examples during a knitting process. Reply at 10 (citing Ex. 2005, 23:11–19; 49:20–50:10; 166:1–8). Not only is this testimony irrelevant, but Dr. Brookstein expressly testified that he never even *considered* Figures 5 and 6. Ex. 2005 at 102:15–104:12; 108:23–109:9. Unrebutted expert testimony shows that joining the vertical edges on opposite sides of Hong’s two-dimensional patterns *during* a flat-knitting process is impossible. Ex. 2003 at ¶51.

Sixth, lululemon’s attempt to analogize a seam shown in Hong’s Figure 3(3) to a “seam” in Figures 10A–10B of the ’484 patent is misleading. Reply at 14–15. The ’484 patent never discloses this portion of Figures 10A–10B to be a seam. Indeed, the ’484 patent describes forming the flat knitted elements of Figures 10A–B “directly in desired three dimensional shapes” in a way that may “eliminate seams.” Ex. 1001 at 4:55–60.

Seventh, lululemon’s argument that “knitting to shape” in the context of Hong means “knitting to three-dimensional shapes” is incorrect and unsupported. Reply at 16. lululemon alleges that Dr. Pastore “confirmed that ‘knit to shape’ articles can include three-dimensional structures.” *Id.* (citing Ex. 1022 at 56:21–57:13). But that doesn’t support the fact that Hong’s use of “knitting to shape” is the same as

“knitting to three-dimensional shapes.” In addition, lululemon cherry-picked this testimony in a misleading way. Just moments before, Dr. Pastore testified that “early knit to shape” elements were “two-dimensional” in form. Ex. 1022 at 56:1–5 (Q: And articles that are knit to shape, could those include two-dimensional shapes? A: Yes, some of the early knit to shape fully fashioned things were like knitting a triangle.). As Dr. Pastore explained, knitting to shape at the time of Hong (mid 1990’s) was a developing technology in its early stages. Ex. 2003 at ¶¶23–24.

Eighth, lululemon incorrectly argues that Nike is “applying an overly narrow construction” in which “the domed three-dimensional structure must exist in its three dimensional shape while still within the flat knitting machine.” Reply at 18–19. lululemon bases this argument on certain deposition testimony from Dr. Pastore. *Id.* But lululemon misunderstood Dr. Pastore’s testimony. He never testified that the domed, three-dimensional structure of the flat-knitted element must exist in a three-dimensional shape while it is held by the knitting loops of the knitting machine. Dr. Pastore merely testified that, when the knitting loops release the flat-knitted element, such as when the flat-knitted element is expelled into a catching basin of the knitting machine, it has a three-dimensional shape. *See, e.g.*, Ex. 1022 at 42:4–43:14.

For at least these reasons and for those discussed in Nike’s Response, lululemon has not shown that Dua in view of Hong and Lockwood renders obvious any Challenged Claim.

B. Other Arguments Advanced by lululemon

lululemon makes two additional arguments as to whether Hong discloses knitting three-dimensional structures during the knitting process: (1) the '484 patent fails to disclose processes for flat knitting a three-dimensional structure, and (2) a POSITA would have had a reasonable expectation of success in knitting a three-dimensional structure based on Hong. These arguments are addressed in turn below.

1. The '484 patent's disclosure is enabling

lululemon's argument that the '484 patent fails to enable flat knitting a three-dimensional structure is irrelevant to this proceeding and wrong. Reply at 19–21. Patent claims cannot be challenged in *inter partes* review under 35 U.S.C. § 112 enablement grounds. *Cuozzo Speed Techs. v. Lee*, 579 U.S. 261, 275 (2018). Notwithstanding this, the '484 patent has an enabling disclosure. For example, as Dr. Pastore testified, “[w]ithin the context of the '484 patent, it's clear how [flat-knitting a three-dimensional structure] is achieved.” Ex. 1022 at 34:17–36:13. This is in direct contrast to Hong, which fails to convey to a POSITA how to knit three-dimensional structures during a knitting process. *E.g.*, Response at 23–24.

2. No reasonable expectation of success

Nothing in lululemon's Reply changes the fact that a POSITA reading Hong wouldn't have reasonably expected to succeed in forming a three-dimensional structure *during* a knitting process. Reply at 21–23. lululemon incorrectly argues

that Nike “focuses on select examples rather than Hong’s full teachings.” *Id.* at 21. But unlike Dr. Brookstein—who admitted he didn’t consider *any* of Hong’s working examples other than Figure 7 (Ex. 2005 at 102:15–104:12; 108:23–109:9)—Dr. Pastore considered Hong in its entirety. Based on that fulsome analysis, Dr. Pastore opined that it would be *impossible* to knit most of Hong’s Knitted Fabrics shown in Figures 3(3)–9(3) *during* the knitting process. Ex. 2003 at ¶¶ 50–51. lululemon never rebuts this fact. This is telling and further confirms that Hong is directed to knitting two-dimensional patterns (Ex. 1005 at Figs. 3(2)–9(2)) which are later formed into three-dimensional structures. Otherwise, a large portion of Hong’s disclosure would be incorrect, rendering the entire article unreliable.

Instead of rebutting this flaw, lululemon focuses only on Hong’s working example shown in Figure 7. Specifically, lululemon points to Hong’s disclosure that the Knitted Fabric of Figure 7(3) is “not difficult to knit.” Reply at 23. But this says nothing about the process for creating the figure shown in Figure 7(3), let alone that the figure is formed *during* the knitting process. The absence of disclosure about the knitting process only highlights why a POSITA reading Hong would not have had a reasonable expectation of success in knitting three-dimensional structures *during* a knitting process.

lululemon again points to Dr. Pastore's testimony that flat-knitting machines that existed in 1994 were "capable" of knitting three-dimensional structures. But again, that is irrelevant. *See supra* § II.A.

C. lululemon Fails to Show that Dua in View of Hong and Lockwood Teaches or Suggests Knitting a "Domed, Three-Dimensional Structure" With Flat First and Second "Side Portion[s]"

Nothing in lululemon's Petition or Reply establishes that a POSITA would have reasonably expected to succeed in combining Hong with Dua and/or Lockwood to form a flat-knitted element having a "domed, three-dimensional structure" flanked with flat first and second "side portion[s]." Petition at 46–51, 53–55; Reply at 24–25. In fact, lululemon's Reply confirms the opposite conclusion.

Without the support of an expert declaration, lululemon argues that Hong's disclosure of "changing the loop length or the number of operating needles during the knitting process" would "enable integration of two-dimensional and three-dimensional elements within the same knitted structure, allowing for knitting of a three-dimensional structure which extends above the plane of flat side portions." Reply at 24. lululemon cites only two passages in Dr. Brookstein's deposition transcript as alleged support. *Id.* (citing Ex. 2005 at 65:8–15, 116:7–25). But these cited portions have nothing to do with lululemon's assertion that Hong discloses *integration* of two-dimensional and three-dimensional elements *within the same knitted structure*. Instead, Dr. Brookstein merely testifies that Hong's teachings are

separately applicable to knitting a three-dimensional element or a two-dimensional element. *See* Ex. 2005 at 65:8–15, 116:7–25. As a result, lululemon’s assertions are nothing more than attorney argument, unsupported by any record evidence. These arguments should be rejected. *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”).

Further, lululemon’s failure to provide a Reply expert declaration leaves Dr. Pastore’s opinions on this point unrebutted. As Dr. Pastore explained, “Hong only shows the development of fully three-dimensional structures—not part three-dimensional, part flat structures.” Ex. 2003 at ¶56. This distinction is important because, as Dr. Pastore further opined, a POSITA would not have had a reasonable expectation of success in turning Hong’s examples of “closed-periphery three-dimensional structures held together by seams that lack any flat portions” into the claimed configuration. This opinion is likewise unrebutted.

For at least these reasons and for those discussed in Nike’s Response, lululemon has not shown that Dua in view of Hong and Lockwood renders obvious any of claims 1–9 or 11–19.

D. lululemon Fails to Show that Either Dua or Hong Teaches or Suggests the “Loop” Limitations of Claims 2–4, 10, or 18–19

lululemon has not carried its burden to show that Dua and/or Hong teaches or suggests the “loop” limitations of claims 2, 10, and 18.

lululemon incorrectly argues in its Reply that “the Petition showed that Dua’s upper and loops for laces are knit together.” Reply at 25. Even assuming Dua’s Figure 13 discloses lace loops, Dua never discloses that those loops are knit together with Dua’s knitted upper. Response at 30–33. lululemon further argues that Dua’s disclosure is somehow sufficient because, according to lululemon, the ’484 patent’s disclosure does not specify how its lace loops were formed or whether they were integrated with the upper as a unitary construction. Reply at 27. This argument fails for two reasons. First, *inter partes* reviews are not concerned with enablement grounds. *Cuozzo*, 579 U.S. at 275. Second, the ’484 patent provides in-depth description of loops being formed of unitary construction with a knitted upper. *E.g.*, Ex. 1001 at 7:55–64, 9:55–65.

lululemon next argues that Nike “overlooks the teachings of the combined references,” because “the Petition demonstrated that it would have been obvious to use a flat-knitting process to incorporate lace loops into an upper like Dua’s, as confirmed by Hong’s teachings.” Reply at 26–27. lululemon’s continued insistence that Hong in some way supports that knitting the claimed “loop” with Dua’s upper

would have been obvious is puzzling. Even Dr. Brookstein confirmed that Hong's loops are "totally different" from the claimed "loops," which are "loops for laces":

Q: Do you see Claim 2 says, "The article of footwear in Claim 1 further comprising a first loop being formed as a second layer of unitary construction with the first layer"? You see that?

A: I do.

Q: What does the term loop mean in that claim?

A: In that claim, they're talking about loops for laces.

Q: That's different than the loops that we discussed in Hong?

A: Totally different.

Ex. 2005 at 118:17–119:5; *see also id.* at 119:6–120:11. Thus, Hong's teachings do nothing to cure the deficiencies in Dua.

Finally, lululemon incorrectly argues that Nike "fails to address the Petition's showing that flat knitting lace loops in an upper like Dua's would have been obvious." Reply at 26–27. As Nike discussed in its Response, neither Dua nor Hong disclose or suggest this limitation, and therefore lululemon's argument that it would have been obvious to combine the two must fail. *See St. Jude Med., Inc. v. Access Closure, Inc.*, 729 F.3d 1369, 1381–82 (Fed. Cir. 2013) (finding claimed invention non-obvious where neither reference of prior art combination taught claimed feature).

For at least these reasons, lululemon has not shown that Dua in view of Hong and Lockwood renders obvious any of claims 2–4, 10, or 18–19.

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

lululemon’s Ground 4 only challenges claims depending from independent claims 1 and 11, and therefore fails for at least the reasons discussed above in Sections II.A–D. lululemon also hasn’t met its burden to show that Dua in view of Hong, Lockwood, and Voughlohn teaches or suggests the “loop” limitations of claims 2, 10, and 18.

lululemon argues in its Reply that Nike mischaracterized lululemon’s Petition by arguing that Voughlohn’s “lace receivers” are bodily incorporated into Dua’s upper. Reply at 28. lululemon misses the point. As Nike explained in its Response, Dua doesn’t disclose knitting loops or any overlapping layers of any sort. Response at 30–33. And Voughlohn doesn’t even disclose a *knitted* lace receiver, i.e., loop. *Id.* at 37. Instead, Voughlohn only discloses a “fabric ring” attached to an upper by riveting or sewing. *Id.* lululemon has given no articulated reasoning why it would have been obvious to a POSITA viewing Voughlohn’s fabric ring, which is not even specifically disclosed as being knitted, and integrally knit that fabric ring with Dua’s upper. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362–63 (Fed. Cir. 2016)

(obviousness showing requires “some articulated reasoning with rational underpinning”).

For these reasons and the reasons discussed in Nike’s Response, lululemon has not shown that Dua, in view of Hong, Lockwood, and Voughlohn, renders obvious any of claims 2–4, 18, or 19.

IV. CONCLUSION

For the reasons set forth above, lululemon has failed to prove by a preponderance of the evidence that any of claims 1–19 of the ’484 patent are unpatentable. Nike requests that the Board enter a final written decision affirming the patentability of those claims.

Dated: October 22, 2024

/s/ Christopher J. Renk

Christopher J. Renk (Reg. No. 33,761)

Michael J. Harris (Reg. No. 62,957)

Aaron P. Bowling (Reg. No. 67,311)

Arnold & Porter Kaye Scholer LLP

70 West Madison Street, Suite 4200

Chicago, IL 60602-4231

Tel: (312) 583-2300

Fax: (312) 583-2360

Lindsey C. Staubach (Reg. No. 76,738)

Arnold & Porter Kaye Scholer LLP

601 Massachusetts Avenue, NW

Washington, DC 20001-3743

Tel: (202) 942-5000

Attorneys for Patent Owner Nike, Inc.

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 Sur-Reply, excluding the table of contents, table of authorities, certificate of word count, appendix and certificate of service, totals 3,275 words, which is less than the 5,600 words allowed under 37 C.F.R. § 42.24(c)(4).

Dated: October 22, 2024

/s/ Christopher J. Renk
Christopher J. Renk (Reg. No. 33,761)
Arnold & Porter Kaye Scholer LLP
70 West Madison Street, Suite 4200
Chicago, IL 60602-4231
Tel: (312) 583-2300
Fax: (312) 583-2360

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on October 22, 2024, I caused a true and correct copy of **PATENT OWNER'S SUR-REPLY** to be served by electronic mail on Petitioners' counsel at the following email addresses:

Ali S. Razai (Reg. No. 60,771)
Joseph F. Jennings (Reg. No. 40,664)
Benjamin J. Everton (Reg. No. 60,659)
Jacob L. Peterson (Reg. No. 65,096)
Knobbe, Martens, Olson, & Bear LLP
2040 Main St., 14th Floor
Irvine, CA 92614
2AZR@knobbe.com
2JFJ@knobbe.com
2BJE@knobbe.com
2JUP@knobbe.com
lululemonIPR-484@knobbe.com

/s/ Timothy Haugh
Timothy Haugh