Trials@uspto.gov
571-272-7822

Paper 81
Entered: March 1, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

adidas AG,
Petitioner,

v.

NIKE, Inc.,
Patent Owner.

IPR2013-00067
Patent 7,347,011 B2

Before JOSIAH C. COCKS, JAMES B. ARPIN, and SCOTT A. DANIELS, *Administrative Patent Judges.*

ARPIN, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision on Remand
Determining Challenged Claim Unpatentable
35 U.S.C. §§ 144, 318(a) and 37 C.F.R. § 42.5(a)

I. INTRODUCTION

On May 17, 2013, at the request of adidas AG ("Petitioner") in a Petition (Paper 7, "Pet."), the Board instituted an *inter partes* review of claims 1–46 of U.S. Patent No. 7,347,011 B2 (Ex. 1002, "the '011 patent") under 35 U.S.C. § 314. Paper 18 ("Dec. to Inst."). After institution, Nike, Inc. ("Patent Owner") filed a Motion to Amend (Paper 31), requesting cancellation of original claims 1–46 and entry of substitute claims 47–50. Petitioner opposed the Motion to Amend (Paper 37), and Patent Owner replied to Petitioner's Opposition (Paper 44). In particular, Petitioner opposed the Motion to Amend, producing additional prior art references and alleging that the substitute claims were unpatentable in view of the combined teachings of the following, prior art references:

Exhibit No.	**Reference**
1005	U.S. Patent No. 5,345,638, issued Sep. 13, 1994 ("Nishida")
1020	U.S. Patent No. 2,178,941, issued Nov. 7, 1939 ("Schuessler I")
1021	U.S. Patent No. 2,150,730, issued Mar. 14, 1939 ("Schuessler II")

A hearing was held on February 10, 2014. A transcript of the hearing is included in the record. Paper 59.

On April 28, 2014, the panel issued a Final Written Decision in accordance with 35 U.S.C. § 318(a). Paper 60 ("FWD I"). The panel granted Patent Owner's request for the cancellation of original claims 1–46, but denied Patent Owner's request for entry of substitute claims 47–50. FWD I 42. In particular, the panel concluded that Patent Owner failed to

establish the patentability of claims 47–50 over the combined teachings of Nishida and Schuessler I and II. Patent Owner appealed the Final Written Decision to the U.S. Court of Appeals for the Federal Circuit ("the Federal Circuit"). Paper 61.

On February 11, 2016, the Federal Circuit issued a decision, affirming-in-part and vacating-in-part this first Final Written Decision, and remanding the case to the Board. *Nike, Inc. v. adidas AG*, 812 F.3d 1326, 1329 (Fed. Cir. 2016) ("*Nike I*"). Specifically, the Federal Circuit affirmed the panel's conclusion that Patent Owner bore the burden of showing the patentability of the substitute claims by a preponderance of the evidence.[1] *Id.* at 1332–34. Further, rejecting Petitioner's arguments, the Federal Circuit affirmed the panel's construction of "flat knit edges" as "an edge of a flat knit textile element, which is itself flat knit, e.g., which is not formed by cutting from a flat knit textile element," as the broadest reasonable interpretation of that term. *Id.* at 1346–47.

In addition, the Federal Circuit determined that substantial evidence supported the conclusion that "a person of skill in the art would have reason to modify Nishida using the teachings of the Schuessler References to arrive at the unitary, flat-knitted textile upper recited in the proposed substitute claims." *Id.* at 1335–38; *see In re Nuvasive, Inc.*, 842 F.3d 1376, 1382–83

---

[1] As noted below, the Federal Circuit has since determined that the burden of showing patentability of the substitute claims may not be placed on the patent owner. *Aqua Products, Inc. v. Matal*, 872 F.3d 1290, 1296 n.1 (Fed. Cir. 2017) (O'Malley, J., plurality); *see infra* note 6.

(Fed. Cir. 2016) ("Our recent decisions demonstrate that the PTAB knows how to meet this burden. For example, in *Nike, Inc. v. Adidas AG*, we affirmed the PTAB's finding of a motivation to combine where it determined that a [person having ordinary skill in the art ("PHOSITA")] 'interested in Nishida's preference to *minimize waste in the production process* would have logically consulted the well-known practice of flat-knitting, which eliminates the cutting process altogether.'" (internal citations omitted)).

The Federal Circuit, however, identified two errors in the first Final Written Decision. First, the panel failed to make a proper determination of how proposed claims 48 and 49, both of which Patent Owner sought to enter as substitutes for original claim 19, "should be treated per the standard set forth in [*Idle Free Sys., Inc. v. Bergstrom*, Case IPR2012-00027, Paper 26 at 8–9 (PTAB June 11, 2013)], and, if necessary, a full consideration of the patentability of each." *Nike I* at 1341–42. Second, the panel failed expressly "to examine Nike's evidence [of long-felt, but unmet, need] and its impact, if any, on the Board's analysis under the first three *Graham* factors." *Id.* at 1339–40; *see Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966) ("Such secondary considerations as commercial success, *long felt but unsolved needs*, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." (emphasis added)). The mandate in *Nike I* issued on April 4, 2016. Paper 1.

Neither party sought to provide additional briefing or requested that the Board take new evidence upon remand, and the Federal Circuit expressly declined to direct the Board to accept new argument or evidence. *Nike I* at 1345 n.6 (citing *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015)). Moreover, neither party sought the Board's guidance regarding procedures on remand. *See* Paper 62.

On October 4, 2017, the Federal Circuit issued a decision in *Aqua Products., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc), addressing issues relating to motions to amend before the Board. On October 11, 2017, the panel offered to accept briefing on impact of the *Aqua Products* decision on the *Nike I* remand. *See* Ex. 3003. On October 27, 2017, the parties requested to submit briefing addressing the impact of the *Aqua Products* decision and specifically requested timing, page limits, and content limitations for such briefing. *Id.* On October 31, 2017, the panel granted the parties' request for briefing. *Id.* Subsequently, Petitioner filed its *Aqua Products* Brief (Paper 65), Patent Owner filed its Response to Petitioner's *Aqua Products* Brief (Paper 66), and Petitioner filed its Reply to Patent Owner's Response (Paper 67).

On September 18, 2018, we issued a Decision on Remand as a second Final Written Decision (Paper 69 ("FWD II")) considering the two errors in the first Final Written Decision, as identified by the Federal Circuit. First, in the second Final Written Decision, we determined Patent Owner proposes a reasonable number of substitute claims, and it was necessary to fully consider the patentability of claim 49. *See Nike I* at 1341–42. Considering

the record in its entirety, we found sufficient reason to modify the teachings of Nishida in view of those of Schuessler I and II and David J. Spencer, *Knitting Technology: A Comprehensive Handbook and Practical Guide* (3d ed. 2001) ("Spencer") (*see, e.g.*, Ex. 1012, 84) to achieve the limitations of claim 49. Second, we considered Patent Owner's evidence of long-felt, but unmet, need, *together with* the other *Graham* factors[2] (*see Nike I* at 1340), but we were persuaded or determined that substitute claims 47–50 were obvious over the combined teachings of Nishida and Schuessler I and II, alone or in combination with Spencer. FWD II 31–32.

On April 9, 2020, the Federal Circuit affirmed our determination that proposed substitute claims 47, 48, and 50 are unpatentable as obvious over the combined teachings of Nishida and Schuessler I and II. *Nike, Inc. v. adidas AG*, 955 F.3d 45, 55 (Fed. Cir. 2020) ("*Nike II*"). With respect to claim 49, which depends directly from proposed substitute independent claim 47, we determined that, in view of the teachings of Spencer, which Petitioner made of record, the omission of stitches was a well-known technique in the field of knitting for forming apertures, and a person of ordinary skill in the art would have had reason to use such a known technique to form the plurality of apertures taught by Nishida, as recited in substitute claim 49. FWD II 15–22; *see Nike II* at 50. Thus, we determined that claim 49 is unpatentable as obvious over the combined teachings of

---

[2] *Graham*, 383 U.S. at 17–18.

Nishida, Schuessler I and II, and Spencer. The Federal Circuit held that, although we may raise a challenge to a proposed substitute claim *sua sponte*, relying on prior art of record, such as Spencer, when considering the patentability of amended claims; we must give the parties notice and an opportunity to be heard regarding such reliance. *Nike II* at 54. Because we did not provide the parties with adequate notice and an opportunity to be heard, e.g., via supplemental briefing or at a hearing, regarding the application of the teachings of Spencer to claim 49; the Federal Circuit "vacate[d] the Board's decision as to substitute claim 49 and remand[ed] for the Board to determine whether substitute claim 49 is unpatentable as obvious after providing the parties with an opportunity to respond." *Nike II* at 55. The mandate in *Nike II* issued May 18, 2020.[3] Paper 80.

Because the Federal Circuit affirmed our finding of unpatentability with respect to claims 47, 48, and 50, we address only the patentability of claim 49 in light of the parties' briefing and the evidence of record. For the reasons that follow, considering the entirety of the record before us, we

---

[3] In light of the Federal Circuit's instructions in its remand, which preceded the Board's decision in *Hunting Titan, Inc. v. Dynaenergetics Europe GmbH*, IPR2018-00600, Paper 67 (PTAB July 6, 2020) (precedential), we do not revisit our decision to determine whether claim 49 is patentable under 35 U.S.C. § 103(a), and more particularly, the combination of Nishida, Schuessler I and II, and Spencer. Further, we note that neither party has argued that the Board here erred by engaging that patentability issue in the first instance. Rather, we focus here on the merits of that patentability issue given the existing record, taking into account the parties' arguments made after receiving notice of the Board's inquiry on this score.

determine that a preponderance of the evidence establishes that substitute claim 49 is unpatentable as obvious over the combined teachings of Nishida, Schuessler I and II, and Spencer.

A. The '011 Patent

The disclosure of the '011 patent is described in the Final Written Decision. FWD I 4–8. Here, we present only a summary description. The '011 patent relates to articles of footwear having a textile "upper." Ex. 1002, 1:7–10. In particular, the Specification describes articles of footwear having an upper incorporating a knitted textile element and having a sole structure secured to the upper. *Id.* at 3:20–47.

Figure 8 of the ’011 patent is reproduced below.

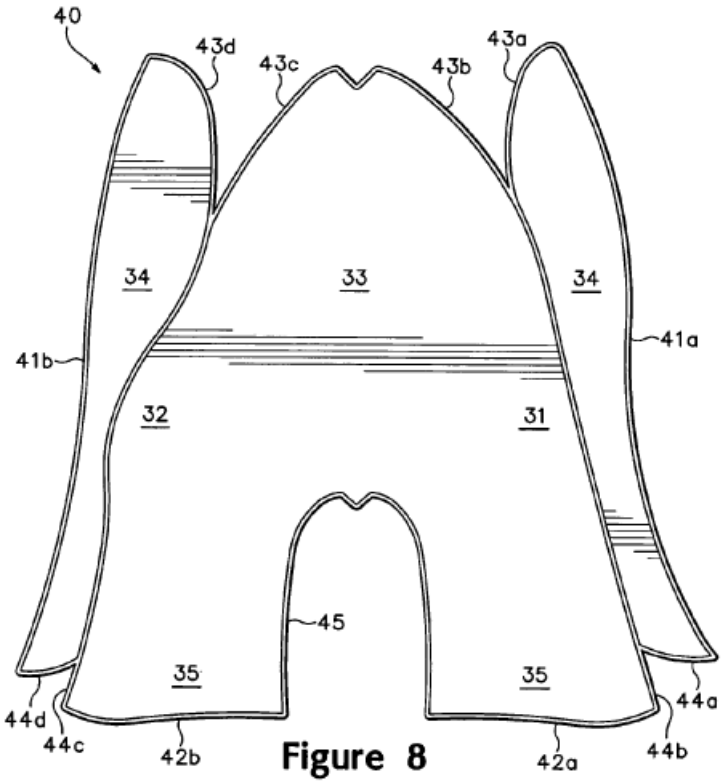

Figure 8

Figure 8 illustrates an embodiment of an upper according to the ’011 patent. *Id.* at 5:58–6:65. “Textile element 40 is a single material element that is formed to exhibit a unitary (i.e., one-piece) construction.” *Id.* at 5:38–41; *see also id.* at Figs. 10 (depicting textile element 40′) and 11 (depicting textile element 40″). Consequently, textile element 40 is configured, such that portions of the textile element are not joined together with seams or other connections. *Id.* at 5:38–41, 6:41–46. Edges 41a–44d, which are *free* in Figure 8, are joined together as shown in Figures 3–5 to form seams 51–54, thereby forming at least a portion of a void for receiving a foot. In

contrast, each of lateral region 31, medial region 32, instep region 33, lower regions 34, and heel regions 35 together have a unitary construction without seams (*id.* at 5:44–57, 6:47–50).

> An article of footwear 110 is depicted in FIG. 12 and includes a sole structure 120 and an upper 130. Upper 130 includes a textile element 140 having the general configuration of textile element 40. As with textile element 40, textile element 140 forms both an exterior surface and an interior surface of upper 130. *In addition, upper 130 includes a lace 131 and a plurality of elements 132-135 that also form a portion of the exterior surface. Lace 131 extends through a plurality of apertures formed in textile element 140. The apertures may be formed by omitting stitches at specific locations.*

Id. at 10:15–25 (emphasis added).

Figure 11 of the ’011 patent is reproduced below.

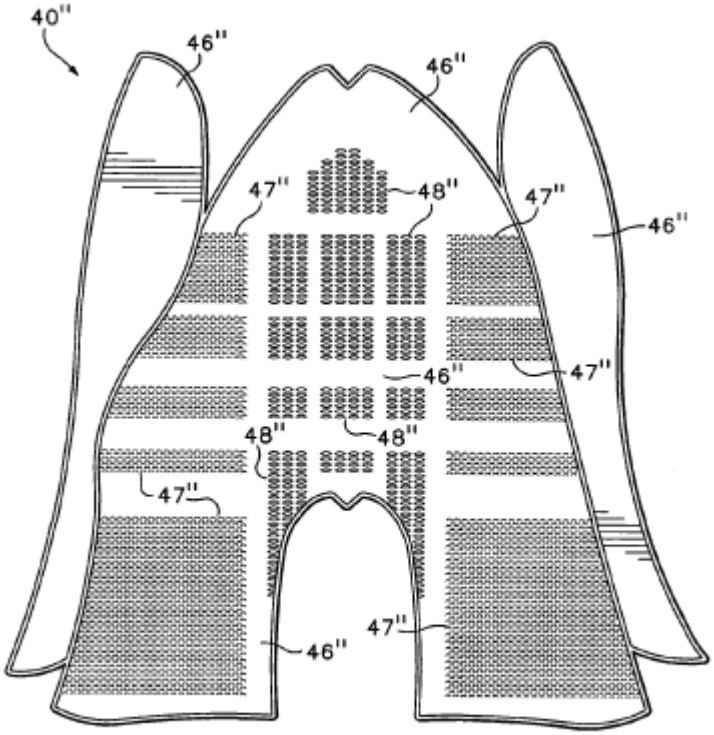

Figure 11

Figure 11 illustrates another embodiment of an upper. *Id.* at 9:36–10:14. In particular, the Specification discloses:

> Third texture 48" is formed to include a plurality of apertures that extend through textile element 40". *The apertures may be formed by omitting stitches at specific locations during the wide-tube circular knitting process, and the apertures facilitate the transfer of air between the void within upper 20 and the area outside of upper 20.*

Id. at 9:55–60 (emphasis added). Third texture 48" extends beyond the portion of textile element 40" that receives laces.

B. Status of the Claims

As noted above, the Federal Circuit affirmed our determination that claims 47, 48, and 50 are unpatentable as obvious over the combined teachings of Nishida and Schuessler I and II. Substitute claims 47 and 49 are reproduced below:[4]

> Claim 47. (Substitute for independent claim 16) An article of footwear comprising
>
> an upper incorporating a [weft-knitted] flat knit textile element, the flat knit textile element
>
> (1) having flat knit edges free of surrounding textile structure such that the flat knit edges are not surrounded by textile structure from which the textile element must be removed, some of the flat knit edges joined together to form an ankle opening in the upper for receiving a foot, the ankle opening having an edge comprised of one of the flat knit edges; and
>
> (2) having a first area and a second area with a unitary construction, the first area being formed of a first stitch configuration, and the second area being formed of a second stitch configuration that is different from the first stitch configuration to impart varying properties to the textile element; and
>
> a sole structure secured to the upper.
>
> Claim 49. (Second Substitute for dependent claim 19) The article of footwear recited in claim [16] 47, wherein at least one of the first stitch configuration and the second stitch configuration forms [an aperture] a plurality of apertures in the [weft-knitted] flat knit textile element, the apertures formed by

[4] Subject matter deleted from original claims 16 and 19 is enclosed by brackets; subject matter added to those claims is underlined.

omitting stitches in the flat knit textile element and positioned in the upper for receiving laces.

Paper 31, 1–2. As noted above, only claim 49 remains at issue; independent claim 47, claim 49's base claim, is reproduced for clarity.

II. DISCUSSION

A. Issues on Remand

As noted above, on remand, we remedy our failure to provide adequate notice and the opportunity to respond to the parties in view of our *sua sponte* challenge to the patentability of claim 49 as obvious over the combined teachings of Nishida, Schuessler I and II, and Spencer. Pursuant to Patent Trial and Appeal Board (PTAB), Standard Operating Procedure (SOP) 9, which describes procedures for decisions remanded from the Federal Circuit, the parties conferred to discuss procedures for this review upon remand. Subsequently, a conference call was held on July 23, 2020, between the panel and counsel for the parties to discuss the procedure for this remanded review.

In accordance with the parties' pre-conference agreement, no submission of additional evidence is necessary or was authorized. After hearing the parties' positions during the conference call, we authorized simultaneous, opening and reply briefing. Each party's opening brief addressed three issues: (1) given that we identified *sua sponte* the "patentability issue for proposed substitute claim 49 based on the prior art of record, which, if either, party bears the burden of persuasion?," (2) "does Spencer teach or suggest the disputed limitation of substitute claim 49?,"

and (3) "would a person of ordinary skill in the art have had reason to combine the teachings of Nishida, Schuessler I and II, and Spencer to achieve the article of footwear recited in claim 49?" Paper 71, 4–5. The simultaneous reply briefing was limited to responding to arguments raised by the opposing party in its opening brief, and no arguments for patentability or unpatentability not presented in that party's opening brief were permitted. We address these issues in turn below.[5]

B. Neither Party Bears the Burden of Persuasion

In *Aqua Products*, Judge O'Malley stated,

> The only legal conclusions that support and define the judgment of the court are: (1) the [Office] has not adopted a rule placing the burden of persuasion with respect to the patentability of amended claims on the patent owner that is entitled to deference; and (2) in the absence of anything that might be entitled deference, the [Office] *may not* place that burden on the patentee.

Aqua Prods., 872 F.3d at 1327 (O'Malley, J., plurality) (emphasis added).[6] The parties agree that Patent Owner does not bear the burden of persuasion regarding patentability; so do we. Paper 75, 8; *see* Paper 74, 1. However, in *Aqua Products*, the Federal Circuit declared where the burden of persuasion

---

[5] We invited both parties to request additional briefing or an oral hearing if either party felt it was necessary. Paper 71, 4. We received no such request.

[6] We note that the Office now has adopted a rule allocating the burden of persuasion in motions to amend, *effective for motions filed on or after January 20, 2021*. Rules of Practice To Allocate the Burden of Persuasion on Motions To Amend in Trial Proceedings Before the Patent Trial and Appeal Board, 85 Fed. Reg. 82923, 82924 (Dec. 21, 2020).

does not lie, but not where it does or may lie. *See* "Guidance on Motions to Amend in view of *Aqua Products*" (Nov. 21, 2017).[7]

Subsequent to *Aqua Products*, but prior to *Nike II*, the Federal Circuit held that, in circumstances where a petitioner remains as a challenger in an *inter partes* review proceeding, the petitioner bears the burden of showing the unpatentability of substitute claims by a preponderance of the evidence. *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1040 (Fed. Cir. 2017) (citing *Aqua Products*, 872 F.3d at 1311 (O'Malley, J., plurality)). Nevertheless, neither *Aqua Products* nor *Bosch* addressed the question of whether the Board could raise *sua sponte* a challenge to the patentability of a substitute claim, much less who bears the burden of persuasion in such a challenge. *Nike II* partially answered this unanswered question from *Aqua Products*. Specifically, the Federal Circuit held "that it is appropriate for the Board to sua sponte raise unpatentability grounds based on the IPR record *and not be limited to the unpatentability grounds asserted by the petitioner in its petition or opposition to the motion to amend*, provided that the Board gives the parties notice and an opportunity to respond." *Nike II* at 53 (emphasis added); *see Hunting Titan,* Paper 67, 8 ("We find that *Nike*[*II*] resolves the question of whether the Board may advance a ground of unpatentability *that a petitioner does not advance, or insufficiently developed*, against substitute claims proposed in a motion to amend. The

[7] https://www.uspto.gov/sites/default/files/documents/guidance_on_motions_to_amend_11_2017.pdf.

Board *may* do so." (additional emphasis added)). *Nike II*, however, is silent on the allocation of the burden of persuasion in such a *sua sponte* challenge.

Patent Owner contends that *Bosch* should govern the allocation of the burden of persuasion, and that Petitioner bears the burden of persuasion for a challenge it did not present in its Petition or in any opposition to the Motion to Amend. Paper 74, 2 ("Taking *Bosch* and *Nike*[*II*] together, the Board may *sua sponte* identify patentability issues, but [Petitioner] still ultimately bears the burden of persuasion."); *see* Paper 79, 5. Petitioner contends, however, that *Bosch* is distinguishable. Paper 75, 9; *see* Paper 78, 2. "Under *Bosch*, [Petitioner] agrees that it would bear the burden if the Board relied *on art and argument raised in its initial briefing*. But that is not the case here." Paper 75, 9 (emphasis added). We agree with Petitioner that *Bosch* is distinguishable and does not govern the allocation of the burden in this remand.

Generally, the Board relies "on the incentives the adversarial system creates, and expect[s] that the petitioner will usually have an incentive to set forth the reasons why the proposed substitute claims are unpatentable." *Hunting Titan*, Paper 67, 12. The Board recognizes, however, that this may not always occur. As the Board explains,

> To be sure, there may be circumstances where the adversarial system fails to provide the Board with potential arguments for the unpatentability of the proposed substitute claims. As noted above, the Supreme Court in *Cuozzo* specifically addressed one such situation, in which the petitioner has ceased to participate in the proceeding altogether. *Cuozzo* [*Speed Techs., LLC v. Lee*], 136 S. Ct. [2131,] 2144 [(2016)]. A

> similar situation may exist where a petitioner chooses not to oppose the motion to amend. *And even where both a petitioner and patent owner participate in the motion to amend process, there may be situations where certain evidence of unpatentability has not been raised by the petitioner, but is readily identifiable and persuasive such that the Board should take it up in the interest of supporting the integrity of the patent system, notwithstanding the adversarial nature of the proceedings.* For example, a situation could arise where the record readily and persuasively establishes that substitute claims are unpatentable for the same reasons that corresponding original claims are unpatentable. There may be other situations as well, but we need not undertake to delineate them with particularity at present. *Such situations are usually fact-specific and the Board can address them as they arise.*

Id. at 12–13 (emphases added).

In *Nike I*, the Federal Circuit noted,

> It may well be that the Board intended to convey that claim 49 was obvious in light of Nishida because skipping stitches to form apertures, even though not expressly disclosed in Nishida, was a well-known technique in the art and that understanding perhaps would be a basis to conclude that one of skill in the art would utilize this technique to create holes for accepting shoe laces. But, the Board did not articulate these findings.

Nike I at 1344–45 (footnote omitted). In our second Final Written Decision, we articulated such findings and identified support for them in the entirety of the record. *See* FWD II 16–17. In this regard, the Federal Circuit noted, "Spencer was undisputedly part of the record in this IPR proceeding. As the Board correctly observed, Adidas included Spencer as an attachment to its petition and both parties' experts relied on Spencer's teachings in their

declarations."[8] *Nike II* at 52. Although we failed to provide adequate notice of our intention to rely on those findings to the parties and an opportunity for the parties to be heard regarding those findings, the Federal Circuit did not fault us for evaluating patentability *ourselves* based on the entirety of the record that was, and is, before us.

Here, that the Board, instead of the Petitioner, raised this challenge is a fundamental difference from *Bosch*. Because Petitioner did not raise the instant challenge to claim 49, Petitioner cannot be made to bear the burden of persuasion regarding that challenge. As the Federal Circuit held in *Aqua Products* and *Nike II*, "the Board 'must consider the *entirety* of the record before it when assessing the patentability of amended claims.'" *Nike II* at 51 (quoting *Aqua Products*, 872 F.3d at 1296). Thus, although the Petitioner may ordinarily bear the burden of persuasion regarding substitute claims, that is not the case here. Where, as here, the Board raises a patentability challenge to a substitute claim *sua sponte*, the Board itself must consider the record in its entirety and justify any finding of unpatentability by reference to evidence of record. *See PTAB Consolidated Trial Practice Guide*, 68 (Nov. 2019) ("Ultimately, the Board determines whether substitute claims are unpatentable by a preponderance of the evidence based on the entirety of

[8] Spencer was placed in the record by Petitioner, but each Party's declarant relies on its teachings. *See* Ex. 1001 ¶¶ 7, 39, 56; Ex. 2010 ¶¶ 51, 105; Ex. 2009, 42:24–43:12. Thus, each Party was on notice as to the content of Spencer and its potential relevance. The parties are tasked with considering the content of the record of the *inter partes* review.

the record, including any opposition made by the petitioner."). We do so here.

C. Obviousness of Claim 49 Over Nishida, Schuessler I and II, and Spencer

As noted above, the Federal Circuit affirmed our determination that independent claim 47 is unpatentable as obvious over the combined teachings of Nishida and Schuessler I and II. The obviousness of claim 47 over the combined teachings of Nishida and Schuessler I and II is no longer in dispute. Claim 49 depends from claim 47 and modifies original claim 19 to recite "a *plurality of apertures* in the flat knit textile element" that are "*formed by omitting stitches* in the flat knit textile element and positioned in the upper for receiving laces." Further, Petitioner challenged claim 19, as well as its base claim, claim 16, as anticipated by and obvious over Nishida. Pet. 3; *see* Dec. to Inst. 37. Patent Owner cancelled claims 16 and 19 in the Motion to Amend without contesting Petitioner's challenge. Thus, Patent Owner waived any arguments regarding the application of the Nishida to the limitations of claim 16 or 19, required by claim 49. *See MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1377–78 (Fed. Cir. 2018).

1. Knowledge of a Person of Ordinary Skill in the Art

Patent Owner contends:

> The parties agreed the skilled artisan was a person with experience designing and developing footwear. (Ex. 2010, ¶ 52 (the skilled artisan "would have a few years of experience with design and development of footwear"); Ex. 1001, ¶ 9 (the skilled artisan "would have at least several years' experience with all aspects of shoemaking").) *Neither party suggested the skilled*

> *artisan would also have knitting experience or expertise, such as experience with knitting processes and machines.* (*Id.*; *see also* Ex. 2009, at 44, ll. 2-3.)

Paper 74, 6 (emphasis added). This is incorrect.

Petitioner asserted,

> *one of ordinary skill in the art would have understood and expected the benefits of using a single type of textile having a plurality of knit constructions for an upper* - that is, that a single type of textile having a plurality of knit constructions would provide the advantages of different properties in the shoe upper, such as breathability and elasticity, while increasing the efficiency of the manufacturing process. ('011 patent (Ex. 1002), 2:62-3:16; 11:12-18). *Specifically, each of Nishida, Glidden, McDonald, Whiting, and Shiomura teach the construction of and/or process for constructing a knitted shoe upper.*

Pet. 16–17 (emphases added); *see* Paper 75, 6; *see also Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) ("[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error 'where the prior art itself reflects an appropriate level and a need for testimony is not shown'") (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp*., 755 F.2d 158, 163 (Fed. Cir. 1985)). Further, Petitioner's declarant testified that a person of ordinary skill in the art would have 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 a proper manner*." Ex. 1001 ¶ 9 (emphasis added); *see* Ex. 1016 ¶ 16 (echoing Mr. Fredrick's definition of a person of ordinary skill in the art); Ex. 2009, 49:13–80:6 (discussing knitting knowledge of a

person of ordinary skill in the art). Moreover, Patent Owner's declarant testified "a person of ordinary skill in the art (POSITA) at the time of the invention for the '011 Patent would have a few years of experience with design and development of footwear *and knowledge of textiles used in such footwear*." Ex. 2010 ¶ 52 (emphasis added). Consistent with the declarants' testimony, and as is thoroughly evidenced by the applied references, especially Nishida and Glidden, knit textiles and knitting methods were known to be used in footwear manufacture. *E.g.*, Ex. 1005, 3:13–15, 5:63–6:2; Ex. 1007, 2:2–10; *cf.* Ex. 1002, 6:51–63 ("Textile element 40 is primarily formed from one or more yarns that are mechanically-manipulated through either an interweaving, intertwining and twisting, or interlooping process, for example. . . . Interlooping involves the formation of a plurality of columns of intermeshed loops, with knitting being the most common method of interlooping."). Thus, we remain persuaded that a person of ordinary skill in the art would have had knowledge of the materials used in the manufacture of footwear, including knit materials and methods of knitting materials. FWD I 15–16.

Patent Owner also contends:

> The other evidence of record also fails to establish that Spencer's alleged teaching was a well-known technique to the skilled artisan. Spencer is a 413-page technical textbook authored by a knitting expert. (Ex. 1012, at 3, 5.) *[Petitioner] did not provide any evidence that shows the skilled artisan, who was in the footwear industry, would have been aware of the Spencer textbook in the knitting industry.*

Paper 74, 6. Having determined that a person of ordinary skill in the art would have experience with knit materials and knitting methods and machines and, in particular, with knit materials for use in footwear, "the hypothetical person of ordinary skill in the art against whose knowledge the question of obviousness is weighed is *legally* presumed to know all the relevant prior art," including Spencer. *In re Kleinman*, 484 F.2d 1389, 1392 (CCPA 1973) (citing *In re Boyer*, 363 F.2d 455, 458–59 (CCPA 1967)); *see supra* note 8. On this record, we determine a person of ordinary skill in the art would have known of Spencer. *See* Paper 75, 6.

2. Spencer Teaches Creating Apertures by Omitting Stitches

In our second Final Written Decision, we found Spencer teaches that "[i]n weft knitting only,[9] open-work structures may be produced *by the introduction of empty needles* and/or by using special elements to produce loop displacement." Ex. 1012, 85 (emphasis added); *see id.* at 118–19 (Figure 9.2 depicting a float stitch produced by an empty needle); *see also* Ex. 2009, 167:21–23 ("Correct, but the knit article, you know, as I described, has apertures in it as a consequence of the open knitting structure.").

---

[9] As proposed, substitute claims 47 and 49 "recite one of two sub-types of a *weft-knitted* textile element, namely a *flat knit* textile element." FWD I 10 (citing Paper 31, 1); *see, e.g.*, Ex. 1002, Abstract ("Various warp knitting or weft knitting processes may be utilized to form the textile element."), 3:30–32 ("The knitting machine may have a configuration that forms the textile element through either warp knitting or weft knitting.").

Spencer also teaches:

> An *open-work structure* has normal securely-intermeshed loops but it contains areas where certain adjacent wales are not as directly joined to each other by underlaps or sinker loops as they are to the wales on their other side. *The unbalanced tension causes them to move apart, producing apertures at these points.*

Ex. 1012, 84 (emphases added); *see id.* at 122. Further, such open-work structures may be used to form *nets* for use in, among other things, sportswear. *Id.* at 85; *see* Dec. to Inst. 27 ("In particular, Nishida discloses that good air exchange may be achieved 'by a *net-like* woven or knitted structure.'"; citing Ex. 1005, 3:49–52). Thus, based on the evidence of record, we concluded that a person of ordinary skill in the art "would have understood that the introduction of empty needles," as taught in Spencer, "causes the omission of stitches, and that the creation of apertures in this manner was a well-known technique at the time of the invention of the '011 patent." FWD II 19–20.

In its opening brief, Petitioner contends:

> Spencer discloses that forming apertures by omitting stitches was a well-known technique. An "open-work structure," in [which] "adjacent wales are not as directly joined," and while such "structure has normal securely-intermeshed loops . . . it contains areas where certain adjacent wales are not as directly joined to each other by underlaps or sinker loops as they are to the wales on their other side. The unbalanced tension causes them to move apart, *producing apertures at these points*." [Ex. 1012, 84] (emphasis added).

Paper 75, 2.

Spencer's Figure 6.12, including Petitioner's annotations, is reproduced below.

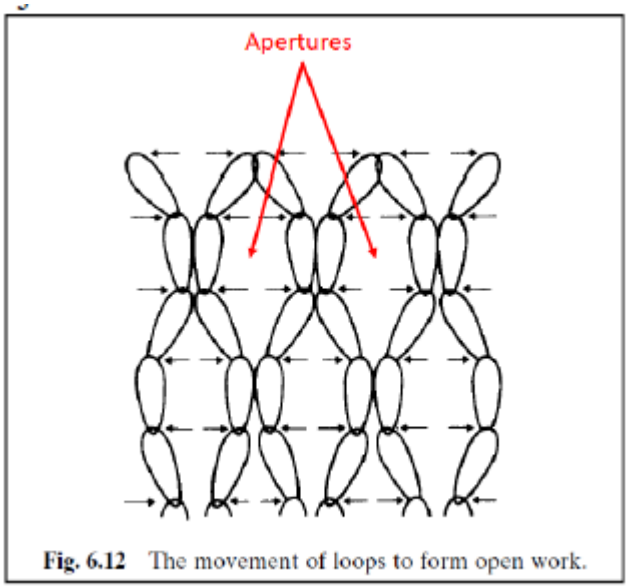

Fig. 6.12 The movement of loops to form open work.

Spencer's Figure 6.12 depicts movement of loops in parallel wales to separate the wales and form an open work including apertures. *See* Ex. 1012, 44 ("A *wale* is a predominantly vertical column of intermeshed needle loops generally produced by the same needle knitting at successive (not necessarily all) knitting cycles. A wale commences as soon as an empty needle starts to knit."). Petitioner explains Spencer's Figure 6.12 is annotated with arrows that "indicate the movement of adjacent wales towards each other at points where they are most securely joined together, thus *producing an aperture* on the other side of the wale." *Id*. at 85 (emphasis added). Thus, Figure 6.12 depicts "formation of apertures where loops are not interconnected" by a stitch, i.e., a stitch is omitted. Paper 75, 2 (citing Ex. 1012, 85).

Petitioner further contends:

> Spencer describes, with regard to [Figure 6.12], that "[i]n weft knitting only, open-work structures may be produced by the *introduction of empty needles* and/or by using special elements to produce loop displacement." [Ex. 1012, 85] (emphasis added). Thus, Spencer is explicit that open-work apertures may be formed "by the introduction of empty needles." *Id.* This expressly discloses forming apertures by skipping stitches, e.g., by using "empty needles."

Paper 75, 2–3. We agree.

Spencer's Figure 9.2, also including Petitioner's annotations, is reproduced below.

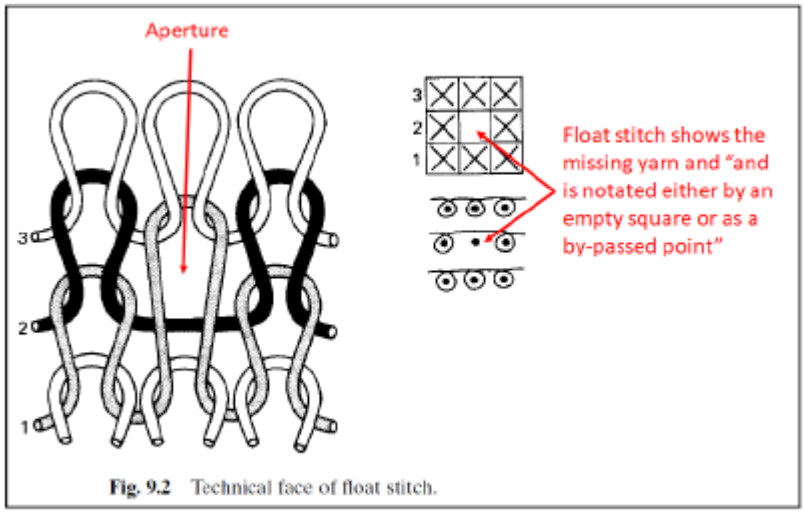

Fig. 9.2 Technical face of float stitch.

"Figure 9.2 depicts a float stitch produced by an empty needle." Paper 75, 3. In particular, Spencer explains that a float stitch "is produced when a needle (M) holding its old loop *fails to receive the new yarn*." Ex. 1012, 119 (emphasis added). Petitioner's annotations include a label, text, and arrows identifying an aperture created by a stitch with the empty needle and the missing yarn in a stitch pattern. As explained, in Figure 9.2 "the float stitch

shows the missed yarn floating freely on the reverse side of the held loop . . . . The float extends from the base of one knitted or tucked loop to the next, and is notated either as an empty square or as a bypassed point." *Id.*; *see* Paper 75, 3 (referring to the empty square or dot reproduced in Fig. 9.2).

> With respect to Figure, 9.2, Petitioner contends:
>
> These "missed yarns" show the formation of an aperture as demonstrated by the figure on the left above. The figure clearly shows an aperture formed by the "float stitch," which is an omission of a stitch causing adjacent yarns to be farther apart than if all adjacent loops were connected because the loop does not receive a yarn from the adjacent row at that location. Thus a "float stitch," and the corresponding aperture, is formed by omitting a stitch at a particular location.

Paper 75, 3–4.

Spencer's Figure 9.6, including Petitioner's annotations, is reproduced below.

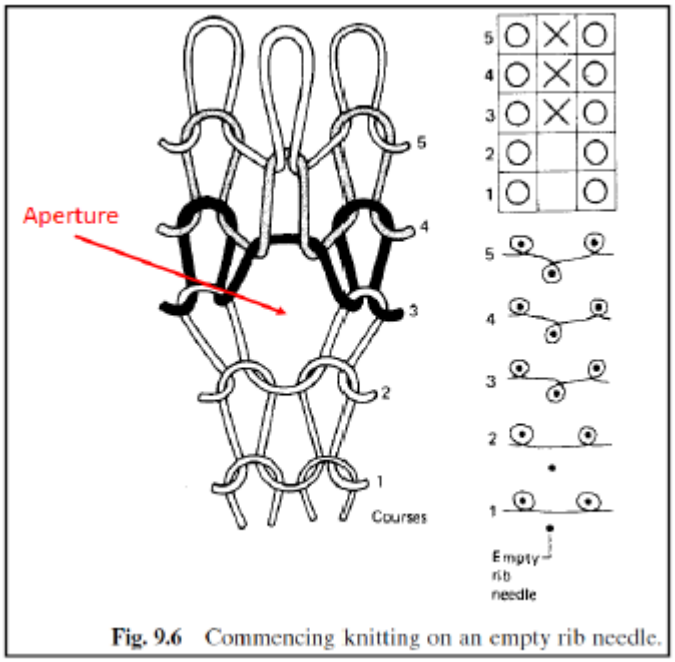

Fig. 9.6 Commencing knitting on an empty rib needle.

Figure 9.6 depicts an aperture created by commencing knitting on an empty needle. Petitioner's annotations include a label and an arrow identifying the aperture. As Petitioner asserts,

> Spencer explains these methods can be used to create a "second loop [that] tends to be wider than normal." [Ex. 1012,] 122. Spencer describes that this process is shown in Figure 9.6, which shows another example of an aperture associated with an "empty rib needle." *Id.* (annotation added).

Paper 75, 3–4.

Patent Owner disagrees with Petitioner's understanding of Spencer's teachings, but Patent Owner's contentions are unpersuasive. Patent Owner notes that we found that Spencer teaches or suggests, "[i]n weft knitting

only, open-work structures may be produced by the introduction of empty needles and/or by using special elements to produce loop displacement" (FWD II, 19 (citing Ex. 1012, 85) (emphasis omitted)); and we characterized Spencer's Figure 9.2 as "depicting a float stitch produced by an empty needle" (*id.* (citing Ex. 1012, 118–119)). Further, Patent Owner notes that we found, "[a]n open-work structure has normal securely intermeshed loops but it contains areas where certain adjacent wales are not as directly joined to each other by underlaps or sinker loops as they are to the wales on their other side. The unbalanced tension causes them to move apart, producing apertures at these points." *Id.* at 20 (citing Ex. 1012, 84) (emphasis omitted). Patent Owner acknowledges that, although the cited portions of Spencer teach that "empty needles" may be used to produce "open-work structures" or "float stitches," and an "unbalanced tension" in "open-work structures" produces apertures,

> Spencer does not provide any link between these techniques and omitting stitches to form apertures. For example, Spencer does not teach that "empty needles" are the same as omitting stitches. (Ex. 1012.) Spencer does not teach that "openwork structures" and "float stitches" are the same as apertures formed by omitting stitches. (*Id.*) And Spencer does not teach that an "unbalanced tension" is the same as omitting stitches. (*Id.*)

Paper 74, 3–4.

Moreover, Patent Owner contends:

> Spencer teaches that apertures are formed by unbalanced tension in openwork structures. (Ex 1012, at 84.) Unbalanced tension is created where "certain adjacent wales are not as

> directly joined to each other . . . as they are to the wales on their other side." (*Id.*) *In other words, Spencer teaches forming apertures by joining or stitching certain wales more closely to their adjacent wales on one side than to their adjacent wales on the other side.* (*Id.*) Spencer does not mention omitting stitches in this context. (*Id.*)
>
> Spencer goes on to explain that open-work structures (not apertures) may be produced in several ways, including (i) the introduction of empty needles; (ii) using special elements to produce loop displacement; or (iii) selective press-off of fabric loops. (Ex. 1012, at 85.) *Spencer never states that apertures may also be produced using any of these techniques. (Id.) Nor does Spencer state that any of these techniques involve omitting stitches. (Id.)*

Paper 79, 1–2 (emphases added; footnote omitted); *but see* Ex. 2009, 167:21–23 (quoted above).

The problem with Patent Owner's contention is twofold. First, Patent Owner's assertions that Spencer does not disclose "omitting stitches" *in haec verba* does not mean that Spencer does not teach omitting stitches by knitting with an empty needle. *See In re Preda*, 401 F.2d 825, 826 (CCPA 1968) ("it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom."). Indeed, Patent Owner's singular focus on the absence of the precise phrasing "omitting stitches" in Spencer falls short of adequate consideration as to what a skilled artisan would have drawn from Spencer's teachings as to the practice of omitting stitches in a knitted article.

Second, Patent Owner suggests that it is only the techniques of joining wales more or less closely that creates apertures in Spencer, not techniques of omitting or skipping a stitch by knitting on an empty needle. Patent Owner generally contends that, therefore, "Spencer does not provide any link between [its disclosed] techniques for forming an aperture and omitting stitches to form apertures." Paper 74, 4. However, we discern that Spencer specifically teaches that open work apertures may cause adjacent wales to be displaced, and, in weft knitting, open-work structures containing such apertures "may be produced *by the introduction of empty needles . . . to produce loop displacement*." Ex. 1012, 84–85 (emphasis added). As noted above, an open work structure has areas where the wales are not joined to each other by *underlaps* or *sinker loops*. Ex. 1012, 84; *see id.* at 66 (describing a "sinker loop"), 67 (describing an "underlap") *see also id.* at 203 ("*Pelerine eyelet* is a cellular structure whose elliptical apertures are formed at courses where adjacent plain wales move outwards *as a result of the absence of connecting sinker loops*." (emphasis added)).

Spencer also explains that the displacement of the wales may be increased by unbalanced tension. Specifically, Spencer discloses, "[t]he unbalanced tension causes them to move apart, producing apertures at these points. The black arrows in Fig. 6.12 indicate the movement of adjacent wales towards each other at points where they are most securely joined together, *thus producing an aperture on the other side of the wale*." *Id.* at 84 (emphasis added). We understand the omission of a sinker loop or underlap between loops of adjacent wales, and, thus, the creation of an aperture

between the wales in an open work structure, may be achieved by knitting on an empty needle. In other words, Spencer discloses a known technique of forming an open work structure that includes apertures formed through the omission of stitching material (i.e., underlaps or sinker loops) between wales of the open work structure. Patent Owner simply does not explain or articulate adequately why the practice of forming an aperture or space in which no stitching material resides via the introduction of an empty needle would not have been readily understood by one of ordinary skill in the art as a practice of omitting stitches.

Thus, contrary to Patent Owner's contentions, we understand that Spencer teaches that knitting with an empty needle causes the loops of adjacent wales not to be joined, that is, it causes stitches to be omitted. Consequently, failing to join such adjacent loops by knitting with an empty needle, i.e., omitting stitches, forms apertures between adjacent wales. *Id.* at Figs. 6.12, 9.2, and 9.6 (reproduced above).

3. Adequate Reason to Combine Teachings of Nishida, Schuessler I and II, and Spencer

"Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). Nishida teaches that the upper includes apertures for laces, but does not specify how the lace apertures are formed. Ex. 1005, 4:1–5, Fig. 3; *see* Paper 31, 8; Ex. 2010 ¶ 107;

cf. Ex. 2010 ¶ 133 (Glidden also is silent as to how lace apertures in the knitted shoe upper are formed).[10]

Nevertheless, Nishida further discloses:

> *Since, generally, toe area 14 is designed to be relatively deformably soft or elastic, and optionally, also permeable to air, the web of material 1, in toe area 14, according to the present invention, is correspondingly designed by suitable selection of the weave pattern, knit pattern and/or the material used, such as, for example, Silk or plastic.* The type of production can, additionally, insure that the toe area 14 has a good air exchange capability. *For example, this can be achieved by a netlike woven or knitted structure.*

Ex. 1005, 3:43–52 (emphases added); *cf.* Ex. 1002, 9:44–60 ("the area of textile element 40" corresponding with instep region 33 includes a third texture 48". The different textures 46"-48" are formed by merely varying the type of stitch formed by the wide-tube circular knitting machine at each location of textile element 40". . . . The air-permeability of textile element 40" may also vary in the different areas. *Third texture 48" is formed to include a plurality of apertures that extend through textile element 40". The apertures may be formed by omitting stitches at specific locations during the wide-tube circular knitting process, and the apertures facilitate the transfer of air between the void within upper 20 and the area outside of upper 20.*" (emphasis added)). Thus, Nishida discloses forming a netlike knitted structure to achieve air permeability. *Cf.* Ex. 1007, Claim 2 ("said upper

---

[10] The panel instituted review of claims 16 and 19 as anticipated by and obvious over Glidden. Dec. to Inst. 37.

having in the foot portion below the ankle a plurality of zones of knitted material of different degrees of stiffness merged integrally by knitted union with one another to provide localized reinforcement of the knitted material . . . while providing elasticity and ventilation of the upper").

Petitioner contends:

> The record shows that there are a finite number of predictable solutions for forming holes. [Patent Owner's] expert suggested that openings could be created by an additional manufacturing step, e.g., "punching out the openings." Ex. 2010 ¶ 107. As discussed above, however, "the omission of stitches was a well-known technique in the field of knitting for forming such apertures." [FWD II] 21. . . . The record thus confirms both that there is a finite number of alternatives for forming apertures, one of which was omitting stitches, and that they were well-known and within the grasp of the skilled artisan.

Paper 75, 5–6. Moreover, Petitioner contends:

> There are additional suggestions and motivations pointing to omitted stitches. As the Board recognized, [Petitioner] established, and the Federal Circuit affirmed a finding of motivation to combine exists because "a PHOSITA 'interested in Nishida's preference to minimize waste in the production process would have logically consulted the well-known practice of flat-knitting, which eliminates the cutting process altogether.'" [FWD II] 4 (citation omitted; emphasis original). That same motivation – to "minimize waste" and eliminate cutting – would likewise motivate the skilled artisan to use the "fundamental principle" of omitting stitches to create an aperture, which accomplishes both, particularly as compared to punching out openings.

Id. at 6–7. We agree.

Patent Owner contends,

> the only record evidence regarding how a skilled artisan would believe those lacing holes are formed is the testimony of [Patent Owner's] expert. (Ex. 2010, ¶ 107.) He testified that, in his opinion and based on Nishida's entire disclosure, it would appear to a skilled artisan that the lacing holes of Figure 3 are "created by an additional manufacturing step, e.g., punching out the openings." (*Id.*) That testimony stands unrebutted.

Paper 74, 9–10; *see* Paper 31, 8 (citing Ex. 2010 ¶ 107).

Even if unrebutted, Mr. Tonkel's testimony is conclusory and entirely unsupported. First, Mr. Tonkel testifies to what Nishida does not expressly disclose; namely, "Nishida contains no description or suggestion of forming such openings by omitting stitches in the layout." Ex. 2010, ¶ 107. Second, Mr. Tonkel testifies "*it appears* such openings were created by an additional manufacturing step, e.g., punching out the openings." *Id.* (emphasis added). However, Mr. Tonkel provides no basis for reaching this conclusion, no citation to Nishida's disclosure of additional manufacturing steps or of punching out openings. Thus, Mr. Tonkel relies on the *absence of disclosure* in Nishida to support his conclusions, and we do not credit Mr. Tonkel's testimony on this point in light of the prior art teachings discussed below. *Elbit Sys. Of America, LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1358 (Fed. Cir. 2018) ("The PTAB [i]s entitled to weigh the credibility of the witnesses."; *quoting Trs. of Columbia Univ. v. Illumina, Inc.*, 620 F. App'x 916, 922 (Fed. Cir. 2015)).

As Petitioner observes, Nishida's preference for minimizing waste is inconsistent with punching out openings in the knitted layout. Ex. 1005,

2:26–32; *see* Paper 75, 6–7. In accord with that observation, it follows readily that a manufacturing process that punches out or removes material from such structures as a knitted layout is not generally recognizable as a process that minimizes waste. Further, Nishida discloses:

> With the use of program-controlled web of material production devices, after a one-time creation of the program, the size of the layout corresponding to the shoe size, the woven or knitted type of individual areas or contours, the type of fiber or yarn and/or the color can be selected almost at will. Therefore, only a small number of individual parts have to be produced separately and applied to the upper later.

Ex. 1005, 2:40–47; *see id.* at 5:63–6:2 ("programs can be matched almost at will according to the corresponding basic setting with deviations in the size of the layouts of the individual shoe uppers or with changes of the type of weave or knit of individual areas"). Thus, Nishida teaches producing an upper by program-controlled knitting, including achieving a netlike knitted structure in the toe area. *Id.* at 3:49–52. Consequently, in view of Nishida's disclosed preferences for minimizing waste and for programmed knitting, we are not persuaded by Mr. Tonkel's testimony that Nishida teaches or suggests forming lace openings by punching.

Nishida and Schuessler II, as well as the '011 Patent, share the same preference for minimizing waste. Ex. 1005, 2:26–32; Ex. 1020, 1:15–27; *see* Paper 31, 14–15 ("Unlike Nishida, which tried to make 'cutting waste' less expensive, the invention of substitute claim 47 solves the long-felt need to reduce textile footwear upper manufacturing waste by eliminating the need to cut a flat-knit upper from a web, thereby eliminating 'cutting

waste.'"); Ex. 2010 ¶¶ 177–179. As discussed above, Nishida discloses the need to create apertures to receive laces and to achieve a netlike knitted structure to improve air permeability in the upper toe. Ex. 1005, 3:49-52, 4:1–5. Further, as noted above, Nishida discloses a preference for using program-controlled knitting to vary the structure of portions of the upper web. Ex. 1005, 2:40–47; *see id.* at 5:63–6:2. For the reasons discussed above, we determine that Spencer teaches or suggests omitting stitches to create apertures in the knitting process, a less wasteful technique for creating such apertures than punching. *See supra* Section II.C.2.; *see also* Ex. 1012, 113 ("The machines are noted for their production of high-quality garments as a result of the gentle knitting action, low fabric tension and fashion shaping, which reduces the waste of expensive yarn during cutting and is emphasized on the garments by carefully-positioned fashion marks."), 194 ("When a needle is not selected to knit the pile yarn, it floats on the pile surface and is clipped out in finishing. It is only knitted into the ground when selected, so there is less wasted yarn.").

Because Nishida discloses an article of footwear having a plurality of apertures formed in an indeterminate manner, but for the same purpose as that recited in substitute claim 49 (*see* Ex. 1005, Fig. 3; Ex. 2010 ¶ 107), and because the omission of stitches was a known technique of forming such apertures (*see* Ex. 1012, 84–85), a person of ordinary skill in the art would have had reason to use a known technique for forming apertures to form the one or more apertures taught by substitute claim 49. *KSR*, 550 U.S. at 421 ("When there is a design need . . . and there are a finite number of identified,

predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp."); Ex. 2010 ¶ 107 (identifying known alternatives for forming apertures); *see also Nike I* at 1344–45 (quoted above). Moreover, because the combined teachings of Nishida, Schuessler I and II, and Spencer address a need or problem known in the field of endeavor at the time of invention and addressed by the '011 patent, we determine that a person of ordinary skill in the art at the time of the invention would have had reason to combine the teachings of these references to achieve the article of footwear recited in claim 49. *See KSR*, 550 U.S. at 420.

III. CONCLUSION

For the reasons set forth above, taking into account the directive in the Federal Circuit's decision remanding this case to us and having considered the entirety of the evidence of record, we determine that a preponderance of the evidence establishes that substitute claim 49 is not patentable as obvious over the combined teachings of Nishida, Schuessler I and II, and Spencer. Therefore, we deny the portion of Patent Owner's Motion to Amend requesting entry of substitute claim 49.

In summary:[11]

Claim	35 U.S.C. §	Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
49	103	Nishida, Schuessler I and II, Spencer	49	
Overall Outcome			49	

IV. ORDER

In consideration of the foregoing, it is

ORDERED that the portion of Patent Owner's Motion to Amend requesting entry of substitute claim 49 is *denied*; and

FURTHER ORDERED that this is a Final Written Decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.

---

[11] If Patent Owner wishes to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

IPR2013-00067
Patent 7,347,011 B2

JBA
JCC
SAD

IPR2013-00067
Patent 7,347,011 B2

PETITIONER:

Mitchell G. Stockwell
Vaibhav P. Kadaba
Tiffany L. Williams
Theodore G. Brown III
KILPATRICK TOWNSEND & STOCKTON LLP
mstockwell@kilpatricktownsend.com
wkabada@kilpatricktownsend.com
twilliams@kilpatricktownsend.com
tbrown@kilpatricktownsend.com

PATENT OWNER:

Christopher Renk
Michael Harris
BANNER & WITCOFF, LTD.
chris.renk@arnoldporter.com
michael.harris@arnoldporter.com