

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WALMART INC.; Z-SHADE CO., LTD.;
COSTCO WHOLESALE CORPORATION;
LOWE'S HOME CENTERS, LLC; and
SHELTERLOGIC CORP.,
Petitioner,

v.

CARAVAN CANOPY INTERNATIONAL, INC.,
Patent Owner.

Case No. IPR2020-01026
Patent No. 5,944,040
Issue Date: AUGUST 31, 1999
Title: COLLAPSIBLE TENT FRAME

PATENT OWNER'S NOTICE OF APPEAL

Notice is hereby given, pursuant to 37 C.F.R. § 90.2(a), that Patent Owner Caravan Canopy International, Inc. (“Patent Owner”) appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered by the Patent Trial and Appeal Board (the “Board”) on November 22, 2021 (Paper 57) (the “Final Written Decision,” a copy of which is attached hereto as Exhibit A).

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner further indicates that the issues on appeal may include, without limitation:

- Whether the Board erred in determining that Petitioner has shown by a preponderance of the evidence that any of the challenged claims of U.S. Patent No. 5,944,040 are unpatentable as obvious, along with all reasons, findings, opinions, and orders leading thereto or underlying that decision.

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), this Notice is being filed with the Director of the United States Patent and Trademark Office, and a copy of this Notice is being concurrently filed with PTAB. In addition, a copy of the Notice of Appeal, along with the required docketing fee, is being filed with the Clerk of Court for the United States Court of Appeals for the Federal Circuit.

Respectfully submitted,

Date: April 13, 2022

/Joshua N. Osborn/

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CERTIFICATE OF SERVICE

I hereby certify that on April 13, 2022, a copy of this **Patent Owner's Notice of Appeal** has been: (a) e-filed with the Patent Trial and Appeal Board via E2E, in accordance with 37 C.F.R. § 42.6(b)(1) and 37 C.F.R. § 90.2(a)(1); (b) filed by hand with the Director of the United States Patent and Trademark Office c/o Office of the General Counsel, Madison Building East, 10B20 600 Dulany Street, Alexandria, VA 22314-5793; (c) filed via CM/ECF with the Clerk's Office of the U.S. Court of Appeals for the Federal Circuit, pursuant to Federal Circuit Rule 52(a)(2); (d) served via e-mail on Petitioners' lead and backup counsel at the following addresses, pursuant to 37 C.F.R. § 42.6(e):

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Exhibit A

UNITED STATES PATENT AND TRADEMARK OFFICE

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COSTCO WHOLESALE CORPORATION;
LOWE'S HOME CENTERS, LLC; and
SHELTERLOGIC CORP.,
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v.

CARAVAN CANOPY INTERNATIONAL, INC.,
Patent Owner.

IPR2020-01026¹
Patent 5,944,040

Before BART A. GERSTENBLITH, JAMES J. MAYBERRY, and
ERIC C. JESCHKE, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining All Challenged Claims Unpatentable

35 U.S.C. § 318(a)

Denying in Part and Dismissing in Part Patent Owner's Motion to Exclude

37 C.F.R. § 42.64

¹ Z-Shade Co., Ltd.; Costco Wholesale Corporation; Lowe's Home Centers, LLC; and ShelterLogic Corp., which filed a petition in IPR2021-00449, have been joined as petitioner in this proceeding.

I. BACKGROUND

Walmart Inc.; Z-Shade Co., Ltd.; Costco Wholesale Corporation; Lowe’s Home Centers, LLC; and ShelterLogic Corp. (collectively, “Petitioner”) challenge claims 1–3 (the “challenged claims”) of U.S. Patent No. 5,944,040 (Ex. 1001, “the ’040 patent”), which is assigned to Patent Owner, Caravan Canopy International, Inc. We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons below, we conclude that Petitioner has proven, by a preponderance of the evidence, the unpatentability of the challenged claims.

A. Procedural History

Walmart Inc. filed a Petition to institute an *inter partes* review of the challenged claims. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 8. With Board authorization (Paper 9), Petitioner timely filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 10), and Patent Owner timely filed a Preliminary Sur-reply to Petitioner’s Preliminary Reply (Paper 11). We instituted trial as to the challenged claims. Paper 12 (“Decision on Institution” or “Dec. Inst.”).

During trial, Patent Owner filed a Response (Paper 20, “PO Resp.”), Petitioner filed a Reply (Paper 27, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 37, “PO Sur-reply”). Patent Owner filed a motion to exclude evidence (Paper 38), which Petitioner opposed (Paper 39), and Patent Owner filed a reply in support of the motion (Paper 42).

After institution of trial in this proceeding, Z-Shade Co., Ltd.; Costco Wholesale Corporation; Lowe’s Home Centers, LLC; and ShelterLogic Corp. filed a petition in IPR2021-00449, asserting the same grounds as

asserted in this proceeding, and moved to join this proceeding. *See* IPR2021-00449, Papers 5 (Petition) & 6 (Motion for Joinder). We instituted *inter partes* review of the challenged claims in IPR2021-00449 and granted the motion for joinder. *See* IPR2021-00449, Paper 11.

Petitioner relies on the declaration testimony of Dr. Richard W. Klopp, P.E., filed with the Petition (Ex. 1003, “Klopp Pet. Decl.” or “Petition Declaration”) and the Reply (Ex. 1025, “Klopp Reply Decl.” or “Reply Declaration”). Patent Owner relies on the declaration testimony of Mr. Lance Rake, filed with the Preliminary Response (Ex. 2014) and the Response (Ex. 2029) (collectively, “Rake Decl.”).² An oral hearing was held on September 15, 2021, and a copy of the transcript of that argument was entered into the record. Paper 56 (“Tr.”).

B. Related Proceedings

The parties identify proceedings in the U.S. District Court for the Central District of California (the “District Court”) in which Patent Owner asserts the ’040 patent against each of the Petitioner entities:

1. *Caravan Canopy Int’l, Inc. v. Walmart Inc.*, 2:19-cv-06978 (C.D. Cal.), filed Aug. 12, 2019;
2. *Caravan Canopy Int’l, Inc. v. The Home Depot USA, Inc.*, 8:19-cv-01072 (C.D. Cal.), filed May 31, 2019;
3. *Caravan Canopy Int’l, Inc. v. ShelterLogic Corp.*, 5:19-cv-01224 (C.D. Cal.), filed July 1, 2019;
4. *Caravan Canopy Int’l, Inc. v. Z-Shade Co. Ltd.*, 2:19-cv-06224 (C.D. Cal.), filed July 18, 2019; and

² Exhibit 2014 includes paragraphs 1–113 and Exhibit 2029 includes paragraphs 114–330 of Mr. Rake’s testimony.

5. *Caravan Canopy Int'l, Inc. v. Lowe's Home Centers, LLC*, 2:19-cv-06952 (C.D. Cal.), filed August 9, 2019.

Pet. 84; Paper 5 (Patent Owner's Mandatory Notices) at 1; IPR2021-00449, Paper 5 at 88; IPR2021-00449, Paper 8 at 1.

The parties also identify other proceedings in which Patent Owner has asserted the '040 patent against parties not involved in this proceeding:

1. *Caravan Canopy Int'l, Inc. v. Bravo Sports*, 2:19-cv-06031 (C.D. Cal.), filed July 12, 2019 (dismissed without prejudice);
2. *Int'l E-Z Up v. Caravan Canopy Int'l, Inc.*, 2:01-cv-06530 (C.D. Cal.), filed July 30, 2001 (settled);
3. *Jang v. Caravan Canopy Int'l, Inc.*, 2:03-cv-01024 (C.D. Cal.), filed February 11, 2003 (settled).

Pet. 84; Paper 5 (Patent Owner's Mandatory Notices) at 1; IPR2021-00449, Paper 5 at 88–89; IPR2021-00449, Paper 8 at 1.

C. The '040 Patent

The '040 patent relates to collapsible tent frames. *See* Ex. 1001, 1:1–10. According to the patent, when pitching (i.e., putting up) existing tents, “center pole ribs 3 are positioned across the upper portion of the interior space as shown in FIG. 2 [below], thus limiting the height of the interior space.”³ *Id.* at 1:57–60. Inconvenience results because users must be mindful not to bump their heads against center pole ribs 3 or connector 4 when entering or standing in the tent. *See id.* at 1:61–64.

³ Throughout this Decision, we omit any bold emphasis of reference numerals and figure numbers in quotations from the '040 patent and from the relied-upon references.

Figures 1 and 2 are reproduced below:

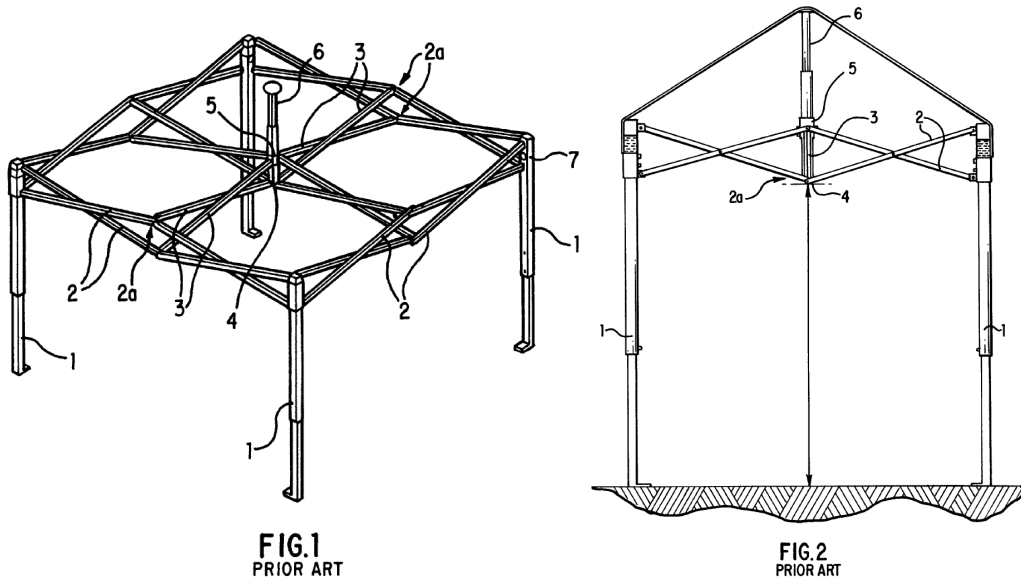


Figure 1 is a “perspective view showing the construction of a typical collapsible tent frame,” and Figure 2 is a “sectional view of a tent with the typical collapsible tent frame when the tent is completely pitched.”

Ex. 1001, 2:35–38. The '040 patent discloses that, because center pole 6 includes connector 4 and slide guider 5, the existing collapsible tent frames have “a complex construction” and increased production costs. *See id.* at 1:65–67. The existing tent frames are also described as “too heavy for a user to easily handle or move.” *Id.* at 2:1–2.

Figures 3 and 4 are reproduced below:

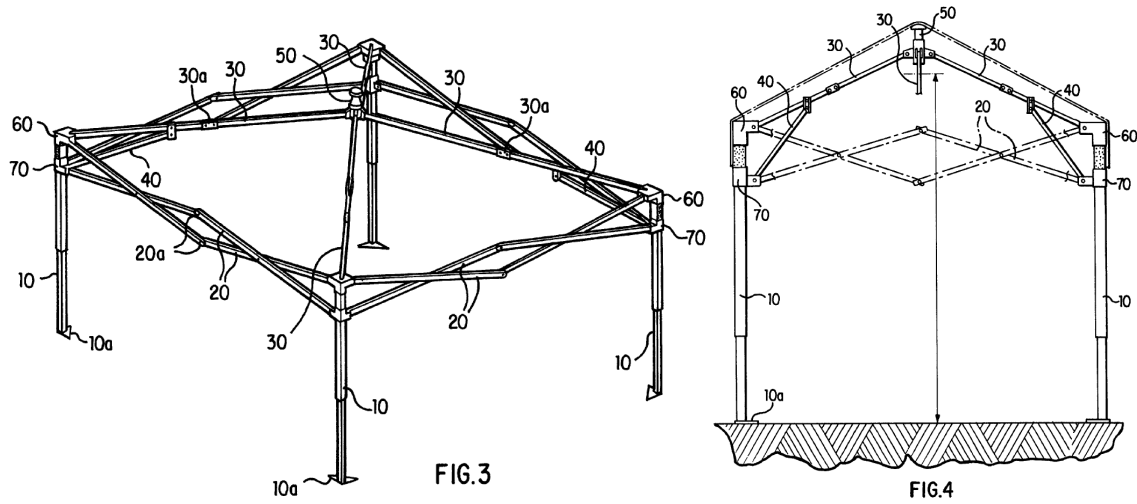


Figure 3 is a “perspective view showing the construction of a collapsible tent frame in accordance with the preferred embodiment” of the ’040 patent, and Figure 4 is a “sectional view of a tent with the collapsible tent frame of this invention when the tent is completely pitched.” Ex. 1001, 2:39–43. The collapsible tent frame in these figures includes “four side poles 10 [that] are individually coupled to a center pole 50, having a simple construction, through a center pole rib 30.” *Id.* at 2:64–66. Each center pole rib 30 is coupled to one of four sliders 70 through support link 40. *See id.* at 3:1–3. The depicted tent frame also includes “a plurality of side pole connection beams 20, with each pair of ribs 20 being coupled to each other at the center of them into a scissor assembly.” *Id.* at 2:53–56. The ’040 patent describes the depicted tent frame as (1) “convenient to users,” (2) having a “simple construction capable of effectively reducing the production cost, volume and weight,” and (3) having “heighten[ed] interior space . . . in comparison with a typical collapsible tent frame.” *Id.* at 4:1–19.

D. Challenged Claims

Petitioner challenges claims 1–3, of which claim 1 is independent. Claims 2 and 3 depend from claim 1. Independent claim 1 is reproduced below, with bracketed text added to identify certain language:

1. A collapsible tent frame, comprising:

[A] a center pole constructed for stretching and sustaining a tent's roof when a tent is pitched with the tent frame;

[B] a plurality of side poles coupled to each other through a plurality of scissor-type ribs, with upper ends of said ribs being hinged to connectors provided at top ends of said side poles and lower ends of said ribs being hinged to sliders movably fitted over said side poles; and

[C1] plurality of center pole ribs coupling said center pole to said connectors of the side poles, [C2] said center pole ribs individually comprising two rib members coupled to each other through a hinge joint and being hinged to the slider of an associated side pole through a support link, [C3] thus being collapsible at the hinge joint in accordance with a sliding motion of said slider along the side pole.

Ex. 1001, 4:27–41.⁴

E. Instituted Grounds of Unpatentability

We instituted *inter partes* review of the challenged claims based on the following grounds of unpatentability asserted by Petitioner:

⁴ We adopt Petitioner's designations for the elements of the challenged claims. We use these designations in the discussion below.

Claim(s)	35 U.S.C. §	Reference(s)/Basis
1–3	103(a) ⁵	Yang, ⁶ Lynch ⁷
1–3	103(a)	Yang, AAPA ⁸
1–3	103(a)	Yang, Berg ⁹
1–3	103(a)	Tsai, ¹⁰ Lynch
1–3	103(a)	Tsai, AAPA
1, 2	103(a)	Tsai, Berg
3 ¹¹	103(a)	Tsai, Berg, Carter ¹²

⁵ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Pub. L. No. 112-29, §§ 3(c), 3(n)(1), 125 Stat. 284, 287, 293 (2011). Because there is no dispute that the challenged claims of the ’040 patent have an effective filing date before March 16, 2013, we apply the pre-AIA version of this statute.

⁶ Japanese Publication No. H1-61370 (with translation and affidavit), published April 19, 1989 (Ex. 1005 (Japanese version) and Ex. 1004 (translation with affidavit), collectively “Yang”). With the Response, Patent Owner provides its own translation of Yang, as Exhibit 2030.

⁷ US 4,779,635, issued October 25, 1988 (Ex. 1007, “Lynch”).

⁸ Statements in the ’040 patent at column 1, lines 11–15; column 1, lines 18–25; and Figures 1 and 2 (“AAPA”). For clarity and consistency with the Petition, we use the term “AAPA” (for Applicant Admitted Prior Art (*see* Pet. 2)). Patent Owner also uses this term. *See, e.g.*, PO Resp. 25 (discussing “Yang in view of AAPA”).

⁹ US 1,502,898, issued July 29, 1924 (Ex. 1008, “Berg”).

¹⁰ US 5,638,853, issued June 17, 1997 (Ex. 1006, “Tsai”).

¹¹ Although Petitioner states that the ground of Tsai, Berg, and Carter renders unpatentable claims “1–3” (Pet. 9), for claims 1 and 2, Petitioner relies on only Tsai and Berg (Pet. 79). *See* PO Resp. 57 n.24 (“As to

II. DISCUSSION

A. The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.* (internal quotation marks and citation omitted).

Petitioner contends that one of ordinary skill in the art at the time of the invention of the '040 patent “would have had a degree in the mechanical arts or a related discipline and at least two years of experience in the design or analysis of mechanical devices, fabricated frames, and/or kinematic linkages, though additional work experience could substitute for a formal degree, and vice versa.” Pet. 16 (citing Klopp Pet. Decl. ¶¶ 25–26).

Patent Owner does not address Petitioner’s proposal, but rather, contends that one of ordinary skill in the art at the time of the invention would have possessed at least a bachelor’s degree in the mechanical arts, including but not limited to mechanical engineering and industrial design, and at least two years’ experience in the field of consumer product design, development, and/or manufacturing, and at least a basic understanding of

claim 1, Grounds 6 and 7 are identical.” (citing Pet. 79)). Petitioner thus relies on the ground of Tsai, Berg, and Carter to address only claim 3.

¹² US 5,511,572, issued April 30, 1996 (Ex. 1009, “Carter”).

ergonomics, which is the applied science relating to designing products that are to be used by people so that the people safely and efficiently interact with the products.

PO Resp. 4 (citing Rake Decl. ¶ 31).

We determine that one of ordinary skill in the art at the time of the invention of the '040 patent would have had (1) a bachelor's degree in the mechanical arts, including but not limited to mechanical engineering and industrial design, (2) at least two years of experience in the design or analysis of mechanical devices, fabricated frames, and/or kinematic linkages, and (3) at least a basic understanding of ergonomics.

As to part (1), although the parties outline generally similar requirements as to formal schooling, Patent Owner's proposal provides enhanced clarity as to the identity of the related disciplines, which we view as supported by the record. *See, e.g.*, Klopp Pet. Decl. ¶ 1, Ex. A; Rake Decl. ¶¶ 4, 7–9, 19. As to part (2), the parties again outline similar requirements as to work experience, but Petitioner's proposal provides added detail on experience in relevant design features, which we view as supported by the record. *See* Exs. 1004–1007. As to part (3), given the nature of the technology at issue, we view a basic understanding of ergonomics as relevant to one of ordinary skill in the art. *See, e.g.*, Ex. 1001, 3:12–49 (discussing operation of the invention by a person); Rake Decl. ¶ 31, *cited at* PO Resp. 4. This is the same level of ordinary skill adopted in the Decision on Institution. *See* Dec. Inst. 32–34.

B. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303

(Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner proposes constructions for “center pole” and “constructed for stretching and sustaining a tent’s roof,” both recited in element 1A. Pet. 28–35; Pet. Reply 9–13. Patent Owner responds by addressing the same claim terms. PO Resp. 4–12; PO Sur-reply 4–6. After the oral hearing, the Board requested additional briefing on claim construction, which the parties provided. *See* Papers 49, 50, 52, 54, 55. We address each phrase below.

1. “Center Pole”

Petitioner proposes to construe “center pole” in element 1A as a “centrally-disposed, long, slender object.” Pet. 28–32. Patent Owner responds that the District Court rejected this proposal and held that the phrase should be given its “plain and ordinary meaning.” PO Resp. 5–6; *see also* Ex. 1018 at 6–10 (the District Court declining to construe “center pole”). We do not discern a need to construe explicitly this phrase because doing so would have no effect on the analysis below. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’”

(quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

2. “*Constructed for Stretching and Sustaining a Tent’s Roof When a Tent Is Pitched with the Tent Frame*”

Element 1A recites that the “center pole” (discussed in the prior section) is “constructed for stretching and sustaining a tent’s roof when a tent is pitched with the tent frame.” Ex. 1001, 4:28–29. The parties discuss aspects of this claim language at length in briefing both before and after the oral hearing. *See* Pet. 32–33; PO Resp. 6–12; Pet. Reply 10–13; PO Sur-reply 4–6; Papers 50, 52, 54, 55. We discuss the parties’ positions below.

a. *Constructed for*

In an order issued after the oral hearing, the Board requested briefing on the parties’ proposed constructions for “constructed for” in element 1A. *See* Paper 49. The parties agree, as do we, that “constructed for” in element 1A means designed or configured for. *See* Paper 50 at 1 (Patent Owner stating that “the proper construction of ‘constructed for’ is ‘a center pole **that is designed or configured to**’”); Paper 52 at 3 (Petitioner stating that “[t]here does not seem to be a dispute between the parties that ‘constructed for’ means ‘configured to,’ and thus ‘made to’ or ‘designed for’”); *see also In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014) (construing “adapted to” as “designed or constructed to”).

b. *Stretching . . . a Tent’s Roof When a Tent Is Pitched with the Tent Frame*

Petitioner argues that “stretching” in element 1A means “heighten[ing],” “extending,” and “spreading out.” *See* Pet. 33 (“Accordingly, [one of ordinary skill in the art] would have understood that ‘constructed for stretching and sustaining a tent’s roof’ means ‘made to

heighten and hold up the tent covering.” (emphasis added)); Pet. Reply 12 (discussing how, because “the [S]pecification uses ‘stretching’ to refer broadly to *extending and spreading out* the components of the frame and roof when pitching the tent, ‘stretching’ in the claim has the same meaning” (citing Klopp Reply Decl. ¶¶ 34–37, 47–48) (emphasis added)). Patent Owner responds that the plain and ordinary meaning of “stretching” is “‘tension’ or ‘make taut’” (PO Sur-reply 4). See PO Resp. 6–12; PO Sur-reply 4–6.

Under the claim construction standard applied in this proceeding, “[t]he words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (citing *Phillips*, 415 F.3d at 1313). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Id.* (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). For the reasons below, we view the plain and ordinary meaning of “stretching” on the complete record here as extending or spreading out, in line with portions of Petitioner’s proposed construction.

We start with the claim language at issue. *TQ Delta, LLC v. DISH Network LLC*, 929 F.3d 1350, 1357 (Fed. Cir. 2019). When considering the language of the claim overall, the usage of “stretching” in element 1A does not meaningfully differentiate between any of the proposed constructions

above.¹³ Patent Owner argues that understanding “stretching” as extending or spreading out “would effectively read out the ‘stretching’ limitation by conflating it with ‘sustaining,’ which the parties agree would be understood to mean ‘hold up’ or ‘support.’” PO Sur-reply 5 (citing PO Resp. 7). Patent Owner first states that “Dr. Klopp could not envision any center pole that did not ‘extend and sustain the tent cover.’” *Id.* (citing Ex. 2033, 26:3–27:20). Patent Owner then adds that “any center pole that holds up or supports the roof would necessarily spread it out or extend it due to gravity and the inclination of the center pole ribs, which would render the term ‘stretching’ superfluous.” *Id.* The record does not support Patent Owner’s position.

In the referenced portion of his deposition, Dr. Klopp testified that “a structure that is taller than it is wide that is situated in the center of the tent and extends above the center pole ribs would, by its nature, extend and sustain the tent cover more than it would be if that structure were taken away.” Ex. 2033, 26:13–20. In this statement, Dr. Klopp *separately* mentions “extend” and “sustain” and gives no indication of equating their meanings. This is supported by statements in Dr. Klopp’s declarations separately discussing these functions. *See* Klopp Reply Decl. ¶ 33 (“If one imagines removing the center pole, obviously the tent cover would no longer be as heightened or as well held up, that is, no longer be *stretched straight nor sustained* in its raised position.” (emphasis added)); Klopp Pet. Decl. ¶ 47 (separately discussing the meanings of “stretch” and “sustain”).

¹³ We address below, in the context of the prosecution history, the language “when a tent is pitched with a tent frame” at the end of element 1A. *See, e.g.*, PO Resp. 12 (discussing this language).

Moreover, even if a “center pole” that sustains a tent roof may also extend that roof, as stated by Patent Owner (PO Sur-reply 5), the functional requirement of extending or spreading out a tent’s roof (e.g., along a certain dimension) is still a distinct functional requirement from holding up the weight of the roof.¹⁴

We turn now to the Specification. Neither party asserts that the applicant acted as a lexicographer as to the term “stretching.” We determine that the Specification supports an understanding of the plain and ordinary meaning as extending or spreading out rather than as “make taut” or in “tension.” As argued by Petitioner, “[t]here is no description requiring that a roof be made taut or placed under tension” and, “[t]o the contrary, the specification consistently uses the word ‘stretch’ to describe extending or spreading out.” Pet. Reply 11. For example, in the eleven instances the Specification uses some form of the word “stretch” (aside from in claim 1), six instances relate to “stretching” the *frame* (or some component of the frame), rather than the *roof*. See, e.g., Ex. 1001, 3:4–6 (discussing how “the collapsible tent frame of this invention is easily and quickly *stretchable* or collapsible, thus allowing a user to easily and quickly pitch or strike a tent” (emphasis added)), 3:15–19 (“When it is necessary to pitch the tent, the four side poles 10 are pushed outwardly at the same time, thus *stretching* the tent frame. When the side poles 10 are pushed outwardly as described above, the sliders 70 move upward along the side poles 10 while *stretching* the two

¹⁴ Under the same logic, Patent Owner’s construction of “stretching” as “make taut” should be rejected because it would render superfluous the “sustaining” requirement in that any “center pole” that makes taut a tent’s roof would also sustain it. Cf. PO Sur-reply 5.

types of ribs 20 and 30.” (emphasis added)), 3:23–24 (discussing how “the center pole ribs 30 are fully *stretched* by the support links 40” (emphasis added)), 3:29–30 (discussing “[w]hen the tent is pitched with the frame being fully *stretched* as described above” (emphasis added)), 4:12–14 (“When the frame is *stretched* so as to pitch a tent, the center pole is fully moved upwardly along with the center pole ribs.” (emphasis added)). These instances do not align with Patent Owner’s proposed construction of “stretching” as in “tension” or “make taut.” We find particularly supportive of the above-determined construction that in one of those six instances, the Specification directly contrasts—using a disjunctive “or”—“stretchable” with “collapsible.” See Ex. 1001, 3:4–6 (discussing how “the collapsible tent frame of this invention is easily and quickly *stretchable or collapsible*, thus allowing a user to easily and quickly pitch or strike a tent” (emphasis added)).

And in the other five instances, the Specification discloses the roof being stretched, but does not, for example, disclose the presence of tension in the roof. See, e.g., *id.* at code (57) (“The tent frame has a center pole used for stretching and sustaining a tent’s roof when pitching a tent.”), 1:12–15 (“As well known to those skilled in the art, a tent is a collapsible shelter of canvas or other material stretched over and sustained by a frame . . .”), 2:15–17 (discussing “a center pole used for stretching and sustaining a tent’s roof when pitching a tent”), 3:20–21 (discussing how “the tent frame stretches and sustains the canvas or other material and pitches the tent”), 3:26–28 (discussing how “the center pole 50 moves upwardly and sustains the center of the roof while stretching the roof as shown in FIG. 4”).

Patent Owner’s declarant, Mr. Rake, states that the uses of “stretch” relating to the tent frame were instances in which that term was “used awkwardly” and that those instances were “not necessarily a guiding concept” for him. Ex. 1024, 40:12–25. Instead, Mr. Rake states that he “didn’t need to look past the claims” for his understanding of “stretching.” *Id.* at 42:24–43:3. This, however, is improper, as the specification “is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582); *see also Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985) (“The descriptive part of the specification aids in ascertaining the scope and meaning of the claims inasmuch as the words of the claims must be based on the description. The specification is, thus, the primary basis for construing the claims.”), *quoted in Phillips*, 415 F.3d at 1315.

Patent Owner contends that “there is no requirement that ‘stretching,’ which appears only in connection with the roof in the claims, be interpreted identically to other instances of ‘stretch’ used in connection with other components only in the specification.” PO Sur-reply 5–6. In other words, Patent Owner would ignore the instances of forms of “stretch” involving the tent frame structures and only consider those involving the tent roof. We disagree with this approach. Instead, we view the varied uses of forms of “stretch” in the Specification as supporting an understanding of the plain and ordinary meaning of “stretching” that encompasses all of the disclosures—i.e., construing “stretching” as extending or spreading out. *See Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 991 (Fed. Cir. 1999) (“Varied use of a disputed term in the written description demonstrates the breadth of the term rather than providing a limited definition.”).

This understanding of “stretching”—informed by the Specification’s disclosures related to both the tent frame *and* the tent roof—is further supported by testimony of Dr. Klopp. *See* Klopp Reply Decl. ¶ 35 (stating that one of ordinary skill in the art “in view of the specification and Figure 4 of the ’040 Patent would understand that with specific reference to the roof, the term ‘stretch’ is consistent with extending the tent frame elements when pitching a tent to push up the center pole and heighten the roof (*as well as spreading out the roof material to a more fully deployed state during the pitching of the tent*)” (emphasis added)), *cited at* Pet. Reply 12. Although Dr. Klopp states in his Petition Declaration that “[t]he center pole specifically heightens the tent roof *to create tension* in the fabric which prevents sagging” (Klopp Pet. Decl. ¶ 44 (emphasis added))—which seems to support Patent Owner’s proposed construction of “stretching”¹⁵—in his testimony that more directly addresses the meaning of “stretching,” he states that “stretching” need not include tension. *See, e.g.*, Klopp Reply Decl. ¶ 37 (stating that “[l]imiting the term ‘stretch’ to mean ‘tensioning’ or ‘to make taut’ is not the plain and ordinary meaning of the term and, in fact, a narrower construction than what [one of ordinary skill in the art] would understand in the context of the ’040 Patent”), ¶ 47 (“None of the disclosed ‘stretching’ in the specification refer to actions of elements which necessarily result in tension.”), ¶ 48 (“Thus, stretching in the scope of the ’040 Patent is about straightening out and extending, independent of whether actual tensile force is involved.”), *all cited at* Pet. Reply 12.

¹⁵ *See* PO Resp. 11 (“And Petitioner’s expert agrees that the center pole 50 cooperates with the tent frame (*i.e.*, the side poles 10) to tension the roof. ([Klopp Pet. Decl.] ¶44.”).

We turn now to Patent Owner’s argument that the Specification supports construing “stretching” as in “tension” or “make taut.” *See* PO Resp. 10–12. Patent Owner highlights the disclosures that the “tent frame is integrated with a canvas or other material,” that “the tent frame stretches and sustains the canvas or other material and pitches the tent,” and that “the center pole 50 moves upwardly and sustains the center of the roof while stretching the roof as shown in FIG. 4.” Ex. 1001, 3:13–14, 3:20–21, 3:26–28, *all quoted at* PO Resp. 10. According to Patent Owner, Figure 4 of the ’040 patent shows that “the roof is stretched (made taut) between the tent frame.” PO Resp. 10. Patent Owner contends that “tension requires two opposite, balancing forces” and that, “[a]s shown in the ’040 Patent *and as recited in claim 1*, the center pole 50 stretches the roof in conjunction with the tent frame.” *Id.* at 12 (citing Rake Decl. ¶¶ 94, 124, 163). Patent Owner states, “[i]n other words, the roof is secured to the tent frame to oppose and balance the force applied to the roof by the center pole 50.” *Id.* (citing Rake Decl. ¶¶ 124, 160–166).

We are not persuaded that these aspects of the Specification support Patent Owner’s proposed understanding of element 1A. As an initial matter, and as noted by Petitioner, the Specification does not describe, in the written description, any particular form of attachment of the tent roof to the side poles. *See* Pet. Reply 13 (citing Ex. 1024, 44:12–45:6 (Mr. Rake admitting the same)). As noted by Patent Owner, however, the ’040 patent does describe the tent frame as “integrated with a canvas or other material, thus forming a tent.” Ex. 1001, 3:14–15, *cited at* PO Resp. 12. According to Patent Owner, this “indicat[es] that the roof is secured to the tent frame rather than being merely draped over the tent frame” and that “the roof is

secured to the tent frame to oppose and balance the force applied to the roof by the center pole 50.” *Id.* (citing Ex. 1001, 3:14–15; Rake Decl. ¶¶ 124, 160–166).

Mr. Rake testifies that he “understood the stippling in Figure 4 of the ’040 patent to represent Velcro securing the roof to the side poles and allowing the center pole to tension the canopy.” PO Sur-reply 2 (citing Rake Decl. ¶¶ 124, 166). Although the stippling on the portion of side poles 10 shown in Figure 4 (between elements 60 and 70) is not described in the written description, we agree with Mr. Rake that the depicted dots are intended to show a different material than the side poles. *See* MPEP ¶ 608.02(IX) (showing “stippling” as a way to “indicate various materials where the material is an important feature of the invention”). Even assuming, however, that the tent roof is attached to side poles 10 using Velcro in the area of the stippling (such that the tent frame is “integrated” with the tent roof (Ex. 1001, 3:14–15)), such an attachment does not *require* the tent roof to be in “tension” as argued by Patent Owner. Instead, the tent roof could be attached at a location far enough up side poles 10 such that, when the tent is pitched, the tent roof is extended or spread out (as compared to *before* the tent was pitched)—but not necessarily in “tension”¹⁶—due to the length of available roof material between the center pole and attachment location on side poles 10. *See, e.g.*, Rake Decl. ¶ 161.¹⁷ Here, we view

¹⁶ As discussed at the oral hearing, it is unclear how much “tension” is required to satisfy Patent Owner’s proposed construction. Tr. 60:16–18.

¹⁷ For example, the graphic above paragraph 162 in Mr. Rake’s Declaration shows a “Relaxed Position” tent attached at points A and B with too much material for the tent roof to be straight. This tent would still

Patent Owner’s argument as importing a “tension” requirement from the Specification, based largely on the perceived straightness of the tent roof as shown in Figure 4. *See, e.g.*, Rake Decl. ¶ 163 (overlying the tent roof in Figure 4 with a dotted line indicating that it is a “Tensioned Position”).

Moreover, as noted by Petitioner, claim 1 does not recite any *additional* structures attaching the “tent roof” to the “side poles” that are required under Patent Owner’s construction of “stretching.” Pet. Reply 13 (“Even if Figure 4 shows a side pole attachment, there is *nothing in the claim requiring* such an attachment.”); Paper 52 at 4 (arguing that “a center pole ‘constructed for’ stretching and sustaining a tent’s roof cannot be understood to require an unclaimed and undescribed structural component on any other element of a tent frame, such as Velcro or some other connection on the side pole”); Paper 55 at 3 (arguing that “by not reciting a roof, the claims also cannot include some additional undescribed, unknown structure to which the roof is purportedly attached”). Indeed, as argued by Petitioner, claim 1 does not even recite a “tent roof” as a structural element of the claimed “collapsible tent frame.” *See* Pet. Reply 11 (“The claim cannot affirmatively require a roof under tension because it is directed only to a frame.”) (citing Klopp Reply Decl. ¶¶ 29–31).

Moreover, even assuming that Figure 4 would be understood as showing an embodiment with a tent roof in “tension,” for the reasons above, the Specification overall still supports the broader construction of “stretching.” *See Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*,

include a “center pole constructed for stretching . . . a tent’s roof when a tent is pitched with the tent frame,” however, because the tent roof is more extended or spread out than *before* the tent was pitched.

340 F.3d 1298, 1306–07 (Fed. Cir. 2003) (stating that “the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration”).

Turning to the prosecution history, the applicant amended element 1A as follows: “a center pole [used] constructed for stretching and sustaining a tent’s roof when [pitching] a tent is pitched with the tent frame.” Ex. 1002 at 59. The applicant stated that “[c]laim 1 has been amended to more particularly point out and distinctly claim the present invention” and “has not been amended in view of any prior art.” *Id.* at 61.

Patent Owner asserts that, “prior to this amendment, it was unclear from claim 1 alone how the center pole stretched the tent’s roof since no balancing force was recited” and that, “[b]y this amendment, the applicant clarified that the center pole stretches and sustains the tent’s roof *in conjunction with the tent frame.*” PO Resp. 12 (citing Rake Decl. ¶ 159). We do not agree with Patent Owner’s view of this amendment. The amendment does not add a recitation of a “balancing force” as argued. *Id.* Moreover, as noted by Petitioner, claim 1 makes clear that the “center pole” is *part* of the frame, not a component acting in conjunction with the “tent frame.” Pet. Reply 13. Further, the Specification supports an understanding that the original language of “when pitching a tent” is effectively the same as “when a tent is pitched with the tent frame,” in that, after extending or spreading out—i.e., “stretch[ing]—the “tent frame,” the “tent” is pitched. *See* Ex. 1001, 3:4–6 (“Therefore, the collapsible tent frame of this invention is easily and quickly stretchable or collapsible, thus allowing a user to easily and quickly pitch or strike a tent.”), 3:15–19 (“When it is necessary to pitch the tent, the four side poles 10 are pushed outwardly at the same time, thus

stretching the tent frame. When the side poles 10 are pushed outwardly as described above, the sliders 70 move upward along the side poles 10 while stretching the two types of ribs 20 and 30. Therefore, the tent frame stretches and sustains the canvas or other material and pitches the tent.”), 4:12–14 (“When the frame is stretched so as to pitch a tent, the center pole is fully moved upwardly along with the center pole ribs.”).

We turn now to extrinsic evidence. Here, the parties select, within the same dictionary, definitions of “stretch” that align most closely with their proposed constructions. *See* PO Resp. 11 (citing Ex. 1016 (Oxford Dictionary and Thesaurus) at 4 (definition 2: “make or become taut”)); Pet. Reply 12 (Patent Owner “relies on a dictionary definition that ‘stretch’ means ‘make or become taut’ ([PO Resp.] 11), but the same dictionary also defines ‘stretch’ to mean ‘draw . . . into greater length or size,’ ‘place or lie at full length or *spread out (with a canopy stretched over them)*,’ and ‘*extend*’”) (quoting Ex. 1016 at 4 (definitions 1, 3, and 5); citing Klopp Reply Decl. ¶ 47); Pet. 33 (citing Ex. 1016 at 4 (definition 3: “place or lie at full length or spread out (*with a canopy stretched over them*)”)).

Because the intrinsic evidence and certain extrinsic evidence supports an understanding of “stretching” as extending or spreading out, we do not adopt a narrower construction based on a dictionary definition selected by Patent Owner. *See Phillips*, 415 F.3d at 1317 (“[W]hile extrinsic evidence ‘can shed useful light on the relevant art,’ we have explained that it is ‘less significant than the intrinsic record in determining “the legally operative meaning of claim language.”’)” (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)); *id.* at 1322–23 (stating that a tribunal may “rely on dictionary definitions when construing claim terms,

so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents”) (quoting *Vitronics*, 90 F.3d at 1584 n.6).

Under the rules applicable to this proceeding, we consider “[a]ny prior claim construction determination concerning a term of the claim in a civil action . . . that is timely made of record.” 37 C.F.R. § 42.100(b). In the District Court, Patent Owner proposed to construe “constructed for stretching and sustaining a tent’s roof” under its plain and ordinary meaning and Petitioner proposed “made to heighten and hold up the tent covering.” Ex. 1018 at 10. The District court “decline[d] to construe the term” but did reject construing “stretching” as “heightening.” *Id.* at 10–11.

Although we do not adopt the portion of Petitioner’s proposed construction equating “stretching” with “heightening,” that proposal is not inconsistent with the construction adopted above—extending or spreading out. Petitioner highlights a passage in the ’040 patent describing how, when the tent is pitched, the “center pole 50 moves upwardly along with the center pole ribs 30,” which “heightens the interior space of the tent in comparison with a typical collapsible tent frame.” Ex. 1001, 3:30–33, *quoted at* Pet. 33. Thus, the tent roof *may* be heightened when it is “stretch[ed]”—i.e., expanded and spread out—but it need not be, in that “heightened” implies a certain orientation of the “tent frame” when the tent is pitched. We note, however, that Petitioner views the portion of the proposed construction equating “stretching” with “heightening” as “say[ing] the same thing in simpler terms” as the dictionary defining “stretch as ‘place or lie at full length or spread out (*with a canopy stretched over them*).’” Pet. 33 (quoting Ex. 1016).

For the reasons above, we construe “stretching” as extending or spreading out, in accordance with its plain and ordinary meaning and in line with Petitioner’s proposed construction. In the discussion of element 1A below, we further discuss applying this understanding to the prior art.

C. Asserted Obviousness of Claims 1–3 Based on Yang and Lynch

Petitioner asserts that claims 1–3 of the ’040 patent are unpatentable under 35 U.S.C. § 103(a) based on Yang and Lynch. Pet. 9, 35–46; Pet. Reply 17–23. Patent Owner provides arguments specifically addressing this asserted ground. See PO Resp. 14–33; PO Sur-reply 6–19. We begin our analysis with an overview of the asserted prior art and then address the parties’ specific contentions in turn.

I. Yang

Yang discloses “a telescopic building structure capable of instantaneously assembling and folding a frame.” Ex. 1004 at 4.¹⁸ Figure 4 of Yang is reproduced below:

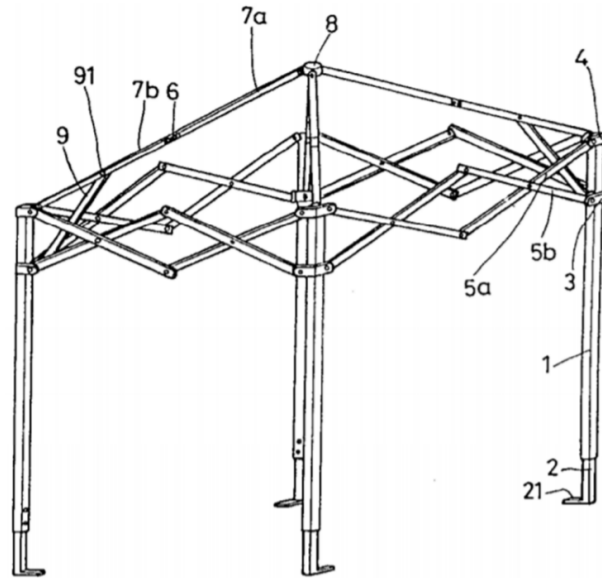


Fig. 4

Figure 4 is “an opened three-dimensional external view with all the side bars of an embodiment of the present invention combined in a crossing method.” Ex. 1004 at 13. The embodiment in Figure 4 includes “a plurality of main support columns (1), side bars (5), lower moving support bar shaft bodies (3), upper fixed support bar shaft bodies (4), roof support bars (7), iron groove joints (6), roof frame push-up bars (9), and a roof bearing beam

¹⁸ Petitioner uses the native page numbering when citing to the English translation of Yang. *See, e.g.*, Pet. 16–18. In contrast, we use the page numbering of the exhibit—i.e., the page numbers added by Petitioner to the bottom right corner of each page. *See* 37 C.F.R. § 42.63(d)(2). In this Decision, we adjust references to Petitioner’s citations accordingly.

shaft (8).” *Id.* at 7.¹⁹ Yang discloses that bottom stand piece 21 is fixed to the bottom of each support column 2 “to reinforce overall stability.” *Id.* at 8.

2. Lynch

Lynch discloses “a quick erectable canopy structure which includes a canopy covering and a canopy framework unit which is adapted to mount and position the canopy covering as a temporary shelter.” Ex. 1007, 4:59–63.

Figure 2 of Lynch is reproduced below:

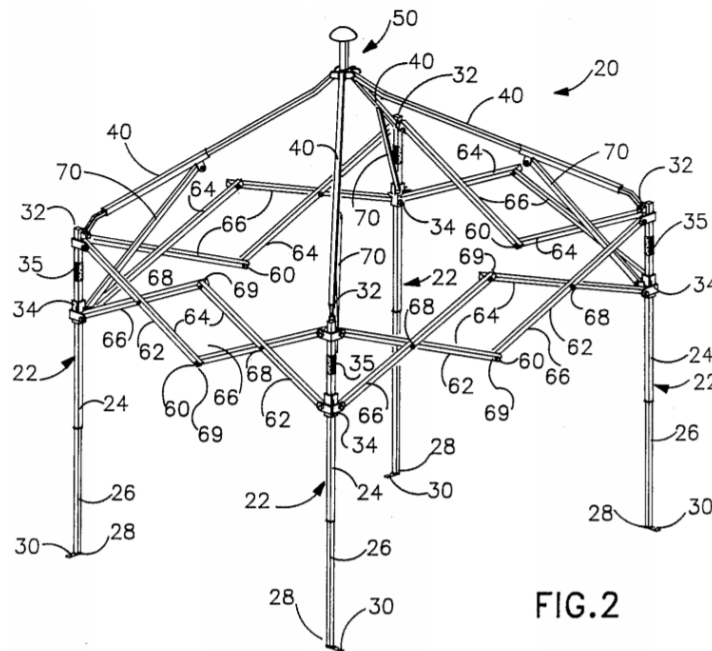


Figure 2 depicts “a structural framework unit” for the canopy structure shown in Figure 1. Ex. 1007, 4:35–36. In relevant part, Lynch discloses

¹⁹ Patent Owner provides an alternative translation of Yang (Ex. 2030), which “consistently refers to element 8 as the ‘roof beam receiver shaft,’” rather than a “roof beam bearing” and “roof bearing beam shaft,” as in Petitioner’s translation (Ex. 1004). *See* PO Resp. 14. Because we do not view these inconsistencies as material to the issues at hand, we primarily refer to Petitioner’s translation.

apex portion 50, which “includes a center post assembly 52 which includes a cross bracket 54 that provides four pairs of ears,” each of which are pivotally connected to the end of an inner telescoping member 42. *Id.* at 6:33–37; *see also id.* at Figs. 3, 6 (showing further details of apex portion 50).

3. *Analysis*

a. *Independent Claim 1*

Petitioner contends that the proposed combination of Yang and Lynch discloses each limitation of claim 1. Pet. 35–44. To support its arguments, Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. *Id.* Petitioner also articulates reasons to combine the relied-upon aspects of Yang and Lynch. *Id.* at 35–40. We address in turn below the subject matter of each limitation in claim 1 and then Petitioner’s identified reasons to combine Yang and Lynch.

(1) *Preamble*

In the preamble, claim 1 recites “[a] collapsible tent frame, comprising.” Ex. 1001, 4:27. Petitioner states that, “[t]o the extent the preamble is limiting, . . . Yang generally discloses a ‘telescopic instant frame assembled building structure capable of quickly extending and contracting.’” Pet. 37–38 (quoting Ex. 1004 at 2; citing *id.* at 3–4; Klopp Pet. Decl. ¶ 73). Patent Owner does not present arguments for the preamble. To the extent the preamble is limiting, we find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang discloses this claim language.

(2) Element 1A

In element 1A, claim 1 recites “a center pole constructed for stretching and sustaining a tent’s roof when a tent is pitched with the tent frame.” Ex. 1001, 4:28–29. Petitioner presents two alternative positions: (1) Yang alone discloses this element, and (2) to the extent that Yang does not disclose this element, Lynch does. *See* Pet. 38. We discuss each position in turn below.

(a) Reliance on Yang

Petitioner states that “Yang teaches a roof beam bearing 8 which can be round or an alternative shape with a plurality of connectors to connect to the roof support bars (center pole ribs).” Pet. 38 (citing Ex. 1004 at 10). Highlighting Figures 1–4, Petitioner states that, in Yang, “roof beam bearing 8 stretches and holds up the center of the tent roof.” *Id.* (citing Klopp Pet. Decl. ¶ 74). Patent Owner contends that Yang does not satisfy this element. PO Resp. 18–19. Petitioner does not address this issue in the Reply.

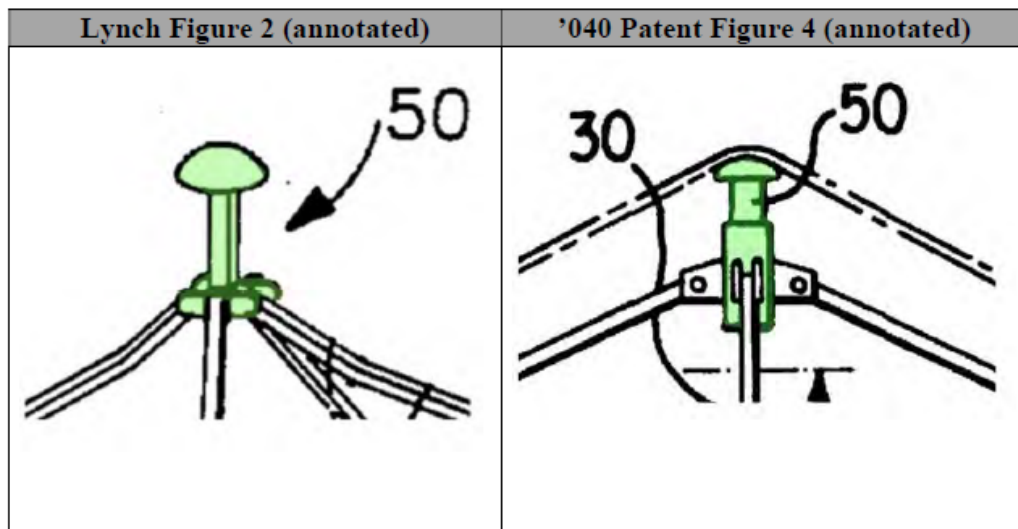
We are not persuaded that one of ordinary skill in the art would have understood that Yang’s roof bearing beam shaft 8 is a “center pole” as recited in element 1A. Petitioner does not adequately explain *why* one of ordinary skill in the art would have had this understanding. To the extent Petitioner relies on the disclosure that roof bearing beam shaft 8 could be “another shape” (Ex. 1004 at 10), Petitioner fails to adequately describe *what* shape would have been selected and *why* that shape would have been understood as a “center pole.” *See* Pet. 38. Dr. Klopp’s testimony fails for similar reasons. *See* Klopp Pet. Decl. ¶ 74 (“Because Yang suggests that the roof bearing beam (8) could be ‘round *or another shape*’, [one of ordinary skill in the art] would understand that the roof beam bearing 8 could have its

shape modified without affecting its performance.”). For the reasons above, we find, based on the complete record, that Petitioner has not shown by a preponderance of the evidence that Yang alone discloses or suggests element 1A.

(b) Reliance on Lynch

In the alternative, Petitioner identifies apex portion 50 in Lynch as a “center pole,” stating that that structure “is used ‘to increase space for activities’ as well as to create more tension in the rooftop to reduce the risk of the rooftop collapsing, bending, or leaking rainwater when raining.” Pet. 38–39 (citing Ex. 1007, 7:48–56; Klopp Pet. Decl. ¶¶ 72–75).

Petitioner provides the following annotated portions of Figure 2 from Lynch and Figure 4 from the ’040 patent, stating that “Figure 2 of Lynch shows the apex portion 50 nearly identical to the center pole 50 of the ’040 Patent.” Pet. 39.



Pet. 39. In the annotated portions, Petitioner added green shading to apex portion 50 in the portion of Figure 2 of Lynch as well as to center pole 50 in the portion of Figure 4 of the ’040 patent. *Id.* Petitioner adds the following:

As described above, [one of ordinary skill in the art] would have been motivated to modify the roof bearing beam 8 in Yang to have an extended center pole to heighten and hold up the fabric tent roof. [Klopp Pet. Decl.] ¶¶74–79. Such a design would further push up the tent’s rooftop “to increase space for activities” as well as creating more tension in the rooftop to reduce the risk of the rooftop “collapsing, bending, or leaking rainwater when raining.” Ex. 1004, at [6–7]; [Klopp Pet. Decl.] ¶¶77–79.

Pet. 40.

Patent Owner argues that Lynch’s “apex portion 50, when simply added into Yang as Petitioner proposes would not, and could not, “stretch[] . . . the tent’s roof when the tent is pitched with the tent frame” as required by element 1A because “[s]tretching (*i.e.*, tensioning) the roof requires two equal but opposite forces acting on the roof.” PO Resp. 19–20 (citing Pet. 39; Rake Decl. ¶¶ 208–209). According to Patent Owner, “apex portion 50 in modified Yang, would provide only a single force insufficient, by itself, to tension (or stretch) the roof.” *Id.* at 20 (citing Rake Decl. ¶¶ 208–209). Patent Owner takes the position that “Yang’s roof is draped over its roof portion 7/8” rather than connected (e.g., along the side poles) such that “there would not be any force applied to the roof to counter a force imparted thereto by the apex portion 50 the [sic – to] stretch (*i.e.*, to tension) the roof.” *Id.* (citing Rake Decl. ¶¶ 208–209).

In the context of this argument, Patent Owner relies on its proposed construction of stretching—*i.e.*, in tension or make taut—which we do not adopt. *See supra* § II.B.2.b. Because we do not adopt Patent Owner’s proposed construction, we do not agree that the claim language at issue requires the presence of two opposing forces. In addition, claim 1 does not require a “roof” as a structural element that is connected, for example, to the

“side poles” to provide the opposing forces discussed by Patent Owner. *See* PO Resp. 19–20; Paper 54 at 4 (Patent Owner acknowledging that “the claims do not positively recite a ‘tent roof’”); Paper 55 at 3 (Petitioner arguing that “the claims also cannot include some additional undescribed, unknown structure to which the roof is purportedly attached”).

Relatedly, we also do not agree with Patent Owner that claim 1 requires a “stressed tent frame” and excludes a “freestanding (or un-stressed) tent frame.” Paper 54 at 2 (Patent Owner arguing that “[s]tretching a tent roof between the center pole and tent frame provides a stressed tent frame, which is distinguishable from a freestanding (or un-stressed) tent frame” (citing PO Resp. 16; Rake Decl. ¶¶ 131, 133, 160)). Again, with this argument, Patent Owner relies on its construction of stretching as in “tension” or “make taut.”

Patent Owner’s view that element 1A requires a “stressed tent frame” also necessitates the *presence* of an unrecited tent roof, configured in a certain way with respect to the recited “tent frame,” because, as acknowledged by Patent Owner, a tent roof is required to provide a “stressed tent frame.” *See* Paper 54 at 2 (“*Stretching a tent roof between the center pole and tent frame provides a stressed tent frame, which is distinguishable from a freestanding (or un-stressed) tent frame.*” (emphasis added) (citing PO Resp. 15; Rake Decl. ¶¶ 131, 133, 160)). The preamble of claim 1, however, recites a “collapsible tent frame” with the structural elements in each clause—e.g., the “center pole,” “plurality of side poles,” “plurality of scissor-type ribs,” “connectors,” “sliders,” “plurality of center pole ribs,” and “hinge joint”—all being structure of the *tent frame itself*. Ex. 1001, 2:52–3:3. A tent roof is *not* positively recited. *See* Paper 54 at 4 (Patent

Owner stating that “the claims do not positively recite a ‘tent roof’”). Moreover, as noted by Petitioner, the ’040 patent describes Figure 3 (which only shows a tent frame) as a “preferred embodiment *of the present invention*” and contrasts a “tent frame” alone with a “tent”—i.e., a “tent frame . . . integrated with a canvas or other material.” Ex. 1001, 2:39–41 (emphasis added), 4:13–14, *both cited at Paper 52 at 4; see also Honeywell Int’l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) (construing the term “fuel injection system component” as limited to a fuel filter based, in part, on statements in the specification referring to “the fuel filter as ‘this invention’ or ‘the present invention’”).

In contrast to the Federal Circuit decisions relied on by Patent Owner to argue that “the functional limitations here inform the overall structure of the tent frame as a stressed tent frame” (Paper 54 at 2), Patent Owner’s proposed construction of the functional limitations here would require the *presence* of an unclaimed “tent roof” and require that the “tent roof” be attached to the claimed “tent frame” such that the “tent roof” is taut—i.e., to produce a “stressed tent frame.” *Id.* Specifically, in *In re Giannelli*, the court distinguished the prior art “first handle portion” in a chest press machine in that it was not, as recited, “adapted to be moved from a first position to a second position by a pulling force exerted by a user on the first handle portion in a rowing motion.” *Giannelli*, 739 F.3d at 1379–80. In contrast to Patent Owner’s position here, the *presence* of a “user” was not required to inform the structures at issue in *Giannelli*.

Similarly, in *In re Man Machine Interface Technologies LLC*, the court distinguished the prior art “desk-bound device” as structure that was not, as recited, “adapted to be held by the human hand.” 822 F.3d 1282,

1286 (Fed. Cir. 2016). The court did not distinguish the prior art based on the *absence* of a “human hand,” which was not positively recited. Because we determine that claim 1 does not require a “stressed tent frame” as argued by Patent Owner or a roof “in tension,” we need not address the parties’ arguments as to whether Yang discloses a “taut” roof. *See, e.g.*, Pet. Reply 14–15; PO Sur-reply 6–12.

Rather than limiting the configuration of the recited “tent frame” *with* an unclaimed tent roof, the plain language of element 1A limits how the “center pole” is “constructed”—i.e., what the “*center pole*” is designed and configured for (*see supra* § II.B.2.a). *See* Paper 55 at 2 (Petitioner arguing that “[t]he dispute between the parties is not whether ‘constructed for’ requires configuration or capability, but whether the claims are directed to the configuration of the entire *tent in use* or just a specific *structure* of the *center pole*”); Paper 50 at 4 (Petitioner arguing that “the scope of the claims cannot, as [Patent Owner] seems to allege, depend on the configuration of the tent roof, or on how a user actually installs a tent roof”). On the complete record developed at trial, for the reasons discussed below, we determine that Petitioner has demonstrated by a preponderance of the evidence that roof beam bearing 8 in Yang as modified to have apex portion 50 in Lynch would provide the “center pole” recited in element 1A.

The record supports Petitioner’s position that apex portion 50 of Lynch is structurally similar to center pole 50 as depicted in the ’040 patent. Pet. 39–40 (citing, e.g., Klopp Pet. Decl. ¶ 75 (discussing how “Lynch teaches ‘a centrally located elongated rod’”). After apex portion 50 of Lynch is used to modify roof beam bearing 8 in Yang, the modified device would thus include a “center pole.”

We turn now to the focus of the parties' arguments: whether the "center pole" in the modified device is "constructed for stretching and sustaining a tent's roof when a tent is pitched with the tent frame," as required by element 1A. Ex. 1001, 4:28–29. We find, based on the complete record and for the reasons below, that the "center pole" in the modified device is "constructed for stretching and sustaining a tent's roof when a tent is pitched with the tent frame," as required by element 1A. As an initial matter, disclosures in Lynch support this finding. As highlighted by Petitioner, Lynch expressly discloses that components in apex portion 50 "appl[y] a biasing force 'to maintain tension on canopy covering 12 so that top panels 16 are maintained in a taut condition regardless of environmental conditions.'" Pet. Reply 17 (quoting Ex. 1007, 6:64–7:3). In the passage cited by Petitioner, which discusses Figure 3 (reproduced below), Lynch describes cover 12 as "*extend[ing]* over upper end 32 of corner support member 22 such that its top panel 16 *extends* upwardly to peak 14 that is defined by head 59 of corner post assembly 52." Ex. 1007, 6:64–67, *cited at* Pet. Reply 17.

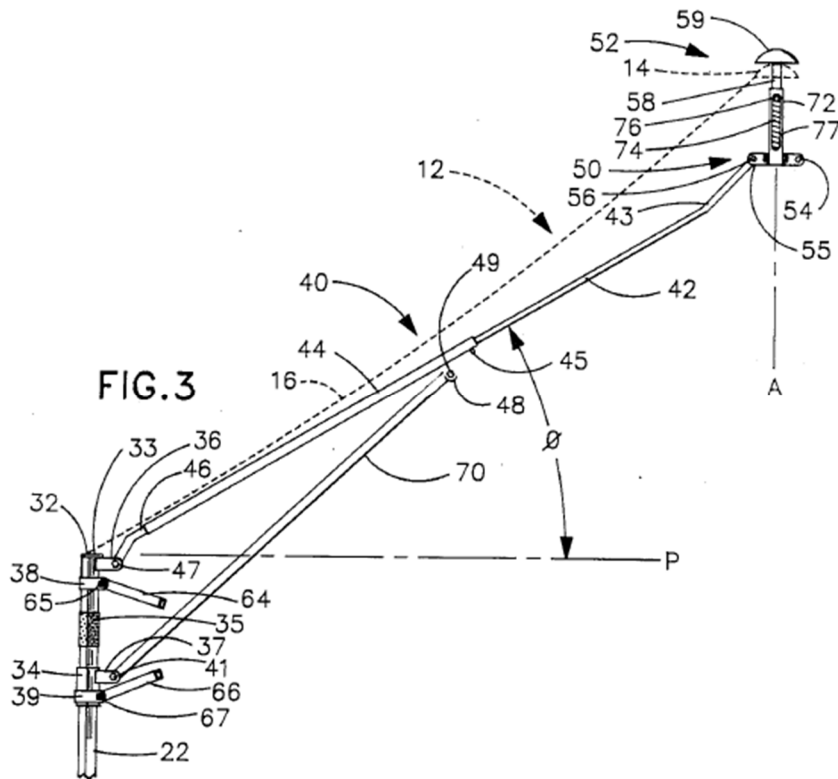


Figure 3 of Lynch is “a side view in elevation of a top portion of a representative corner support member and roof support member which forms the canopy framework unit.” Ex. 1007, 4:37–40.

Although this disclosure supports that apex portion 50 in Lynch is, *in the context of its own invention*, “constructed for stretching and sustaining a tent’s roof when a tent is pitched with the tent frame,” it is important to note that the Figure 3 embodiment in Lynch includes Velcro fasteners 35 that secure side panel 18 of canopy covering 12 to corner support member 22. *See id.* at 6:60–64 (“As is shown in phantom in FIG. 3, canopy covering 12 has a side panel 18 which is additionally secured to a top portion of corner support member 22 by means of corresponding hook and loop fasteners, such as Velcro fasteners 35.”). The issue here is whether the “center pole” *in the context of the modified device* (which does *not* include Velcro

fasteners configured as in Lynch) is “constructed for stretching and sustaining a tent’s roof when a tent is pitched with the tent frame.”²⁰ We determine that Petitioner has demonstrated that this requirement would be satisfied in the context of the modified device, even without Velcro fasteners.

We first address whether the “center pole” in the modified device is “constructed for . . . sustaining a tent’s roof when a tent is pitched with the tent frame.” Petitioner states that after modifying roof bearing beam 8 in Yang to include apex portion 50 from Lynch, the “center pole” would “heighten and hold up the fabric tent roof” from Yang. Pet. 40 (citing Klopp Pet. Decl. ¶¶ 74–79). According to Petitioner, the proposed modification “would further push up the tent’s rooftop ‘to increase space for activities’ as well as creating more tension in the rooftop to reduce the risk of the rooftop ‘collapsing, bending, or leaking rainwater when raining.’” *Id.* (citing Ex. 1004 at 6–7; Klopp Pet. Decl. ¶¶ 77–79). We agree that the apex of the roof in Yang as modified by Lynch’s teachings would be higher than the

²⁰ In the Reply, Petitioner seeks to rely on Lynch’s disclosure of using Velcro to attach the roof to the tent frame. *See* Pet. Reply 17 (bottom paragraph). As argued by Patent Owner, this is a new argument provided for the first time in reply. *See* PO Sur-reply 12–13; *see also Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015) (“We see no error in the Board’s rejection of [a petitioner’s] reliance, in its Reply submissions, on previously unidentified portions of a prior-art reference to make a meaningfully distinct contention.”); Consolidated Trial Practice Guide 73 (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuide> Consolidated (“TPG”) (“Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability.”). We do not consider Velcro fasteners as part of the modified device.

same point prior to modification. *See* Pet. 40 (discussing how the “center pole” would “heighten and hold up the fabric tent roof” from Yang). Patent Owner admits that, in the modified device, the “center pole” would hold up the roof above roof support bars 7 in Yang, thereby showing that the “center pole” in the modified device is “constructed for . . . sustaining a tent’s roof when a tent is pitched with the tent frame.” *See* PO Resp. 31 (“In other words, the apex portion 50 in modified Yang would hold up (*i.e.*, sustain) the roof but would not ‘maintain tension in the canopy 12 so that top panels 16 are maintained in a taut condition regardless of environmental conditions’ as in Lynch because Yang is a freestanding design.”). We agree with the parties’ positions on the “sustaining” requirement.

We also determine that the “center pole” in the modified device is “constructed for stretching . . . a tent’s roof when a tent is pitched with the tent frame.” Indeed, discussing the construction of “stretching” adopted above, Patent Owner acknowledges that “any center pole that holds up or supports the roof”—*i.e.*, “sustain[s]” the roof—“would necessarily *spread it out or extend it* due to gravity and the inclination of the center pole ribs” (PO Sur-reply 5 (emphasis added))—*i.e.*, “stretch[es]” the roof under the construction adopted above. Dr. Klopp’s deposition testimony supports this position. As noted above, Dr. Klopp testified that “a structure that is taller than it is wide that is situated in the center of the tent and extends above the center pole ribs would, by its nature, *extend and sustain* the tent cover more than it would be if that structure were taken away.” Ex. 2033, 26:13–20 (emphasis added), *cited at* PO Sur-reply 5.

In the context of the modified device, after raising the apex of the roof in Yang higher than that point prior to modification, the “center pole” would

extend and spread out the tent roof due to gravity. *See* PO Sur-reply 5. In other words, the “center pole” in the modified device is “constructed for stretching . . . a tent’s roof when a tent is pitched with the tent frame” under the construction of “stretching” adopted above. For the reasons above, we find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang as modified by Lynch discloses the subject matter of element 1A.²¹

(3) Element 1B

In element 1B, claim 1 recites “a plurality of side poles coupled to each other through a plurality of scissor-type ribs, with upper ends of said ribs being hinged to connectors provided at top ends of said side poles and lower ends of said ribs being hinged to sliders movably fitted over said side poles.” Ex. 1001, 4:30–34. To address this element, Petitioner identifies main support columns 1 in Yang as the “side poles,” side bars 5 as the “scissor-type ribs,” upper fixed support bar shaft bodies 4 as the “connectors,” and lower moving support bar shaft bodies 3 as the “sliders.” Pet. 40 (citing Ex. 1004 at 7–10, Fig. 4; Klopp Pet. Decl. ¶ 80). Petitioner also provides annotated figures from Yang, allegedly showing “the upper ends of side pole ribs 5a being hinged to fixed connectors 4 at top ends of the side poles with the lower ends of the side pole ribs 5b being hinged to sliders 3 moveably fitted over the side poles.” *Id.* (citing Klopp Pet. Decl. ¶ 80); *see also* Pet. 41 (annotated versions of Figures 4, 14, and 15 of Yang). The record evidence, summarized above, supports Petitioner’s position.

²¹ We address below Patent Owner’s arguments that one of ordinary skill in the art would not have modified Yang based on Lynch as proposed. *See infra* § II.C.3.a.7.

Patent Owner does not present arguments for this element. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang discloses element 1B.

(4) Element 1C1

In element 1C1, claim 1 recites a “plurality of center pole ribs coupling said center pole to said connectors of the side poles.” Ex. 1001, 4:35–36. To address this element, Petitioner states that

Yang discloses roof support bars 7a and 7b (center pole ribs) “fixed to . . . the central roof beam bearing (8), the other ends are fixed on . . . the upper fixed support bar shaft body (4)” (connector, which “is fixed to the upper end of the main columns (1)” (side poles).

Pet. 41 (quoting Ex. 1004 at 9–10; citing Klopp Pet. Decl. ¶¶ 81–82); *see also* Pet. 42 (annotated version of Figure 4 of Yang). The record evidence, summarized above, supports Petitioner’s position. Patent Owner does not present arguments for this element. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang discloses element 1C1.

(5) Element 1C2

In element 1C2, claim 1 recites “said center pole ribs individually comprising two rib members coupled to each other through a hinge joint and being hinged to the slider of an associated side pole through a support link.” Ex. 1001, 4:36–39. To address this element, Petitioner first states that “Yang discloses the roof support bars 7a and 7b (center pole ribs) ‘are linked with an iron groove (6)’ (hinge joint).” Pet. 42 (quoting Ex. 1004 at 10; citing Klopp Pet. Decl. ¶¶ 81, 85). Petitioner then states that “Yang also discloses that ‘both sides of the support frame push-up bar (9) [support link] are respectively fixed to . . . the lower moving support bar shaft body (3)

[(slider) and] . . . the roof support bar (76)' (center pole rib)." Pet. 42–43 (alterations by Petitioner) (quoting Ex. 1004 at 10–11; citing Klopp Pet. Decl. ¶¶ 81, 85); *see also* Pet. 43 (annotated versions of Figures 4, 13, and 15 of Yang). The record evidence, summarized above, supports Petitioner's position. Patent Owner does not present arguments for this element. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang discloses element 1C2.

(6) Element 1C3

In element 1C3, claim 1 recites “thus being collapsible at the hinge joint in accordance with a sliding motion of said slider along the side pole.” Ex. 1001, 4:40–41. To address this element, Petitioner states that

Yang discloses the collapsing of the canopy frame: the “four main support columns (1) [(sides poles)] are pulled to the center” which causes the lower moving support bar shaft body (3) [(slider)] to slide down the four main support columns (1) [(side poles)] and the “angle of each joint portion [(hinge joint)] [to be] close to zero.”

Pet. 43 (alternations in original) (quoting Ex. 1004 at 11–13; citing Klopp Pet. Decl. ¶ 86). The record evidence, summarized above, supports Petitioner's position. Patent Owner does not present arguments for this element. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Yang discloses element 1C3.

(7) The Combination of Yang and Lynch

(a) Summary of the Proposed Combination

Petitioner states that “apex portion 50 of Lynch could be readily substituted for Yang's roof bearing beam shaft 8 without impacting the function of the apex portion or the joints between the apex portion and the

roof support members.” Pet. 36 (citing Klopp Pet. Decl. ¶¶ 70–72). According to Petitioner, modifying “Yang to use a center pole as taught by Lynch would have been simply ‘arrang[ing] old elements with each performing the same function it had been known to perform and yield[ing] no more than one would expect from such an arrangement’ and would have been thus obvious.” *Id.* (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007)). Petitioner asserts that the proposed modification “would have provided benefits including increased headroom inside the tent, increased pitch of the tent roof to shed rainwater, and increased support and pitch of the tent roof to make the canopy more aesthetically pleasing.” Pet. 36–37 (citing Ex. 1004 at 6–7; Ex. 1007, 2:15–18; Klopp Pet. Decl. ¶¶ 70–72). Petitioner argues that the tent frames in Yang and Lynch “have similar structure” and also “function similarly to raise and lower the tent, which results in tent structures that are solid and strong when raised and compacted into a small volume when collapsed.” Pet. 37 (citing Ex. 1004 at 11; Ex. 1007, 2:10–18; Klopp Pet. Decl. ¶¶ 69–70). According to Petitioner, “[a]ll of these benefits would have motivated the modification of Yang to use a center pole as taught by Lynch.” *Id.*

In the discussion of element 1A, Petitioner states that Lynch “teaches an extended, central apex portion 50 that is used . . . to create more tension in the rooftop to reduce the risk of the rooftop collapsing, bending, or leaking rainwater when raining” (Pet. 38–39 (citing Ex. 1007, 7:48–56; Klopp Pet. Decl. ¶¶ 72–75)) and that one of ordinary skill in the art “would have been motivated to modify the roof beam bearing 8 in Yang to have an extended center pole to heighten and hold up the fabric tent roof” because “[s]uch a design would further push up the tent’s rooftop ‘to increase space

for activities’ as well as creating more tension in the rooftop to reduce the risk of the rooftop ‘collapsing, bending, or leaking rainwater when raining’” (Pet. 40 (citing Ex. 1004 at 6–7; Klopp Pet. Decl. ¶¶ 74–79)).²²

*(b) Arguments Addressing the Articulated
Reasons to Combine Yang and Lynch*

Petitioner provides several alternative reasons why one of ordinary skill in the art would have modified Yang based on Lynch as proposed. Patent Owner addresses those arguments and then provides arguments as to why one of ordinary skill in the art *would not* have modified Yang based on Lynch. We first address Petitioner’s reasons to combine and then address Patent Owner’s arguments.

First, Petitioner argues that one of ordinary skill in the art would have modified Yang based on Lynch as proposed because the modification would have provided the benefit of “increased headroom inside the tent.” Pet. 36–37 (citing Ex. 1004 at 6–7; Ex. 1007, 2:15–18; Klopp Pet. Decl. ¶¶ 70–72). In a paragraph in the cited declaration, Dr. Klopp testifies that one of ordinary skill in the art “would have recognized that this modification of Yang to include an extended center pole of Lynch would have provided benefits including increased headroom inside the tent.” Klopp Pet. Decl. ¶ 72.

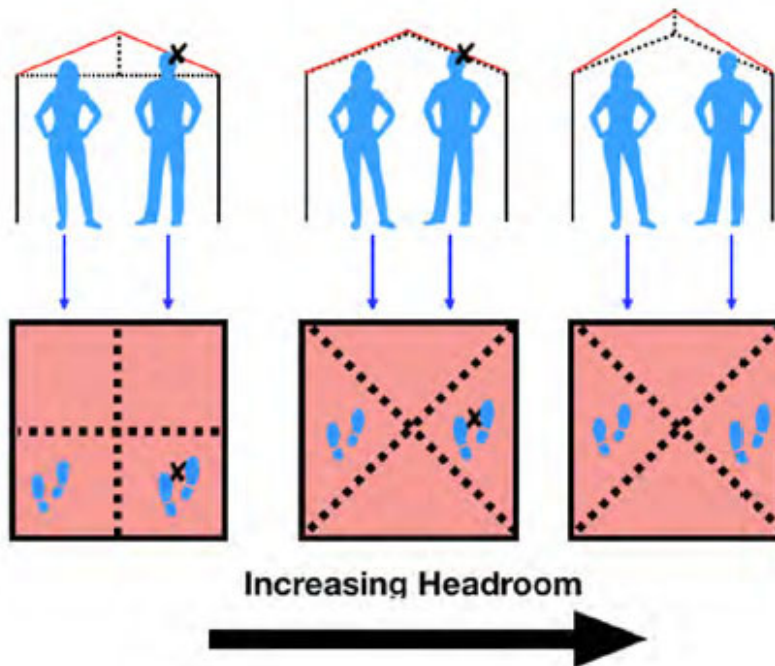
²² Although Petitioner does not include this statement in the “Motivation to Combine” section (*see* Pet. 35–37), Patent Owner addresses this and similar statements in its arguments. *See* PO Resp. 22 (discussing the statement quoted from page 40 of the Petition). We do the same.

Patent Owner argues that the proposed modification of Yang based on Lynch would *not* have actually increased “headroom.”²³ PO Resp. 22–24. Specifically, Patent Owner argues that this reason to combine is “obviously deficient” because “merely pushing up the roof would *not* increase useable headroom or ‘space for activities’ under the tent.” *Id.* at 22 (citing Rake Decl. ¶¶ 58–60). According to Patent Owner, “the usable headroom under the roof, or the ‘space for activities,’ often referred to as the clear ceiling height (or clear headroom) by those skilled in the art, is dictated by the height of Yang’s roof portion (*i.e.*, the roof support bars 7 and roof beam receiver shaft 8), not the height of the roof itself.” *Id.* at 22–23 (citing Rake Decl. ¶¶ 47–57; Ex. 1004, Fig. 4). Patent Owner states that the proposed modification “would only increase the height of the roof (the ceiling height) and would *not* increase the useable headroom (the clear ceiling height) under the tent.” *Id.* at 24 (citing Rake Decl. ¶ 59).

In the Reply, Petitioner responds that one of ordinary skill in the art “would have been motivated to increase the total ceiling height, not just the clear ceiling height” because “[t]he majority of space under a tent is between the rib members, limited only by the height of the roof, not the frame.” Pet. Reply 19 (citing Klopp Reply Decl. ¶¶ 112–113, 118, 121–123, 128–129). Petitioner also states that “[u]sers would enjoy the added benefit of extra

²³ For clarity, instead of using “headroom,” in the remainder of this discussion, we use “total ceiling height” (or “ceiling height”) to refer to the distance from the ground to the underside of the canopy, and we use “clear ceiling height” to refer to the distance from the ground to the lowest internal structure of the tent frame. *See* Rake Decl. ¶ 51 (providing similar definitions for “ceiling height” and “clear ceiling height”); *see also* Pet. Reply 19 (using the terms “total ceiling height” and “clear ceiling height”).

headroom between ribs, regardless of the height of the ribs themselves” and that “[e]xtra headroom would enable taller persons to stand under the tent without their heads contacting the roof, and would provide all users with greater sense of space.” *Id.* Petitioner also provides the following graphic.



Pet. Reply 20; *see also* Klopp Reply Decl. ¶ 118 (describing this graphic). The graphic shows three examples of tents in order of “Increasing Headroom.”

On the full record developed at trial, we determine that the increased total ceiling height—i.e., “headroom” as used in the Petition—provides adequate “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” based on the proposed modification. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), *cited with approval in KSR*, 550 U.S. at 418. Here, the unmodified version of Yang is most similar to the middle example in Petitioner’s graphic above, as it has no *structure* underneath the tent roof (as roof support bars 7 and groove joints 6 are

essentially at the height of the canopy itself). *Compare* Pet. Reply 20, with Ex. 1004, Fig. 4. The modified device—Yang modified with apex portion 50 of Lynch—is most similar to the rightmost example in Petitioner’s graphic, as the height of the canopy has been increased at least somewhat as compared to the middle example. *See* Pet. Reply 20; *see also* PO Resp. 24 (acknowledging that the proposed modification would “increase the height of the roof (the ceiling height)”). The record supports that this increased total ceiling height—even if only for certain locations where a person might stand—would have motivated one of ordinary skill in the art to modify Yang based on Lynch as proposed. This determination is supported by the testimony of Dr. Klopp, who states that “[i]ncreased headroom in some places under a tent is desirable for stationary users, especially for users of above average height.” Klopp Reply Decl. ¶ 113, *cited at* Pet. Reply 19.

Patent Owner improperly focuses on how “pushing up the roof” would not increase the “clear ceiling height.” PO Resp. 22. Although the ’040 patent identifies increased clear ceiling height as one of the benefits of its design (*see* Ex. 1001, 1:54–60, Fig. 3) over the prior art (*id.* at Fig. 1), “[i]n determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls.” *KSR*, 550 U.S. at 419; *see also Alcon Res., Ltd. v. Apotex, Inc.*, 687 F.3d 1362, 1368 (Fed. Cir. 2012) (“We have repeatedly held that the motivation to modify a prior art reference to arrive at the claimed invention need not be the same motivation that the patentee had.”), *cited at* Pet. Reply 18–19. “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*, 550 U.S.

at 420. Thus, when assessing the articulated reasons to modify Yang based on Lynch, we are not limited to the stated improvements in the '040 patent. Indeed, as discussed above, the tent frame of Yang already includes this improvement, in that each embodiment lacks the internal structures like those shown in prior art Figure 1 of the '040 patent. *Compare* Ex. 1004, Fig. 4, *with* Ex. 1001, Fig. 1.

In the Sur-reply, Patent Owner seeks to limit the Petition to *Patent Owner's* understanding of “headroom”—i.e., clear ceiling height. *See* PO Sur-reply 14. We decline to limit the Petition in that way because, in the Reply, Petitioner clarifies that, with the term “headroom” in the Petition, Petitioner meant “total ceiling height.” *See* Pet. Reply 19; *SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1351 (2018) (stating the statute confirms that the petition “should guide the life of the litigation”). Notably, in his declaration, Mr. Rake appears to have *already had* this understanding from the Petition and Dr. Klopp's declaration. *See* Rake Decl. ¶ 50 (stating that “[Petitioner] Walmart and Dr. Klopp appear to use ‘ceiling height’ in their analysis”).

In the Sur-reply, Patent Owner also argues that one of ordinary skill in the art would *not* have performed the proposed modification of Yang based on Lynch to provide more total ceiling height to taller users, but, *instead*, would have increased the length of the side poles. *See* PO Sur-reply 15. Although Patent Owner's alternative would *also* appear to provide the benefit of increased total ceiling height, as discussed above, so would the modification proposed by Petitioner. *See In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (that “better alternatives” may exist in the prior art “does not mean that an inferior combination is inapt for obviousness purposes”).

For these reasons, we determine, in light of the complete record, that Petitioner has shown by a preponderance of the evidence that one of ordinary skill in the art at the time of the invention would have had reason to modify Yang based on Lynch, as proposed, and that the articulated reasoning of “increased headroom” (Pet. 36) is supported by rational underpinning.

Second, for completeness, we address Petitioner’s alternative argument that the proposed modification also would have provided the benefit of “increased pitch of the tent roof to shed rainwater.” Pet. 36–37 (citing Ex. 1004 at 6–7; Ex. 1007, 2:15–18; Klopp Pet. Decl. ¶¶ 70–72). Patent Owner argues that the proposed modification would actually have impeded rainwater shedding. *See* PO Resp. 25–27. Specifically, Patent Owner argues that “Petitioner and its expert fail to consider the obvious implication of increasing the roof pitch—it would correspondingly increase the linear distance rainwater would need to travel to run off of the roof.” *Id.* at 25 (citing Rake Decl. ¶ 184). According to Patent Owner, “even if rainwater would move faster along a more steeply sloped roof, the rainwater would need to travel a longer linear distance before being shed from the roof, thereby negating any alleged improvement in the rate of rainwater shedding.” *Id.* at 26 (citing Rake Decl. ¶ 184).

In the Reply, Petitioner responds that one of ordinary skill in the art would have understood that “less water will dwell on a steeper pitch than on a shallower pitch” and that “the linear distance that rainwater would need to travel . . . is not a measure of effective rainwater shedding.” Pet. Reply 20–21 (citing Klopp Reply Decl. ¶¶ 96–99, 103, 104, 108–111). In other words, “[w]ith a steeper roof, water will spend less time on any given surface area

of the roof because water will move faster,” and “[w]ater spending less time on each unit surface area reduces the likelihood of water penetration or accumulation and sag.” *Id.* at 21 (citing Klopp Reply Decl. ¶ 103; Ex. 1007, 6:47–7:5).

Based on the full record, Petitioner’s alternative reason to modify Yang based on Lynch is not persuasive because the very benefits that Petitioner asserts would have motivated the modifications are already achieved by Yang’s *unmodified* device. In particular, Yang discloses that “there is *no risk whatsoever*” of water penetration, accumulation or sag (the benefits identified by Petitioner of reducing rainwater shedding). Ex. 1004 at 6 (emphasis added) (stating that “there is no risk whatsoever of the smooth sloped roof collapsing, bending, or leaking rainwater when raining”); Ex. 2030 at 7 (stating that the “center of the roof . . . form[s] one gentle slope that does not run the risk of drooping, twisting, or sagging, or forming any puddles from rain.”).²⁴ Indeed, as argued by Patent Owner, “Yang already provides a roof support structure that ‘does not run the risk of drooping, . . . sagging, or forming any puddles from rain.’” PO Resp. 26 (quoting Ex. 2030 at 7; citing Rake Decl. ¶ 178). Petitioner does not directly address this quotation from Yang in its Reply. *See* Pet. Reply 21–22. Based on this disclosure, we agree with Patent Owner that one of ordinary skill in

²⁴ As noted by Patent Owner, “Petitioner’s translation states that ‘there is no risk whatsoever of the smooth sloped roof collapsing, bending, or leaking rainwater when raining’” (PO Resp. 14 (quoting Ex. 1004 at 6)), whereas “Patent Owner’s translation translates this passage of Yang as ‘does not run the risk of dropping, twisting, or sagging, or forming any puddles from rain’” (*id.* (quoting Ex. 2030 at 7)). We find the translations of these phrases essentially the same for the purposes here, and are not persuaded by Petitioner’s argument under either translation.

the art “would have understood that Yang already provides sufficient rainwater shedding to avoid puddling and would have further understood the rate of rainwater shedding of Yang *cannot be further increased or improved.*” *Id.* (citing Rake Decl. ¶¶ 178, 180–183). The testimony of Mr. Rake supports this finding, when he states that one of ordinary skill in the art would have understood that Yang’s canopy “already provide[s] rainwater shedding capabilities that prevent the collection of rainwater.” Rake Decl. ¶ 178. For these reasons, we determine, in light of the complete record, that Petitioner has not shown by a preponderance of the evidence that the alleged benefit would be realized in the context of the proposed modification.

Third, we address Petitioner’s argument that the proposed modification would have provided the benefit of “increased support and pitch of the tent roof to make the canopy more aesthetically pleasing.” Pet. 36–37 (citing Ex. 1004 at 6–7; Ex. 1007, 2:15–18; Klopp Pet. Decl. ¶¶ 70–72). As to this proposed reason to modify Yang based on Lynch, Patent Owner argues that “[n]either Petitioner nor its expert suggest how Petitioner’s proposed modification to Yang would improve aesthetic appearance.” PO Resp. 27 (citing Rake Decl. ¶¶ 79, 81).

Petitioner responds that “Lynch teaches a center pole to maintain the canopy ‘in a taut condition,’” that “Yang discloses a tent with a ‘neat and pretty’ appearance,” and that “the combination with Lynch would further this goal by adding a center pole specifically designed to apply tension and reduce sagging.” Pet. Reply 22 (quoting Ex. 1007, 7:2; Ex. 1004 at 7) (citing Ex. 1004 at 7; Klopp Reply Decl. ¶¶ 79–83, 129, 147–153; Klopp Pet. Decl. ¶¶ 55, 72).

We agree with Patent Owner that this reason to modify Yang based on Lynch is not adequately supported. *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”); *see also* PO Sur-reply 18 (“Petitioner’s assertion that modified Yang would provide a ‘more aesthetically pleasing canopy’ is a conclusory statement insufficient to meet Petitioner’s burden.”).

Petitioner asserts that, after the modification based on Lynch, the canopy in Yang would be in greater tension than before, *and thus* more aesthetically pleasing. *See* Pet. 36–37; Pet. Reply 22. For the reasons discussed above, however, the record does not support that the modified device would have increased the tension in the canopy or otherwise resulted in the same “taut condition” disclosed in Lynch. *See supra* § II.C.3.a.2.b. For these reasons, we determine, in light of the complete record, that Petitioner has not shown by a preponderance of the evidence that one of ordinary skill in the art at the time of the invention would have modified Yang based on Lynch to “make the canopy more aesthetically pleasing” (Pet. 36).

Fourth, we turn to Petitioner’s statement that modifying “Yang to use a center pole as taught by Lynch would have been simply ‘arrang[ing] old elements with each performing the same function it had been known to perform and yield[ing] no more than one would expect from such an arrangement’ and would have been thus obvious.” Pet. 36 (citing *KSR*, 550 U.S. at 417).

Patent Owner responds that “Petitioner’s analysis . . . fails to recognize that incorporating the apex portion 50 into Yang as proposed would result in . . . Lynch’s apex portion 50 *not* stretching (or tensioning) the roof, contrary to its function in Lynch.” PO Resp. 29. As argued by Patent Owner, “Lynch relies on a combination of the apex portion 50 and Velcro fasteners 35 on the side poles 22 to tension the roof over the roof support members 40.” PO Resp. 30 (citing Ex. 1007, 6:60–7:3, 8:2–12; Rake Decl. ¶ 213).

For the reasons discussed above, however, again, the record does not support that the modified device would have increased the tension in the canopy or otherwise resulted in the “taut condition” disclosed in Lynch. *See supra* § II.C.3.a.2.b. Thus, Lynch’s apex portion 50 would not be performing this *same* function in the context of the modified device. In the Reply, Petitioner continues to focus on the function performed by apex portion 50 *in the context of Lynch* (i.e., providing tension), as opposed to in the context of the modified device, as is proper. *See* Pet. Reply 23. For these reasons, we determine, in light of the complete record, that Petitioner has not shown by a preponderance of the evidence that one of ordinary skill in the art at the time of the invention would have had reason to modify Yang based on Lynch, as proposed, on this basis.

We turn now to Patent Owner’s arguments why one of ordinary skill in the art allegedly *would not* have modified Yang based on Lynch. Patent Owner first argues that U.S. Patent No. 5,701,923 to Losi (Ex. 2015) “[c]ounters” all of Petitioner’s articulated reasons to combine Yang and Lynch. PO Resp. 32–33. Specifically, discussing prior art Figure 17 in Losi (below), Patent Owner states that “Losi describes that when a ‘center strut C

is the only portion of the frame that holds up the canopy above the poles . . . the canopy will often sag.” *Id.* at 32 (quoting Ex. 2015, 1:55–58).

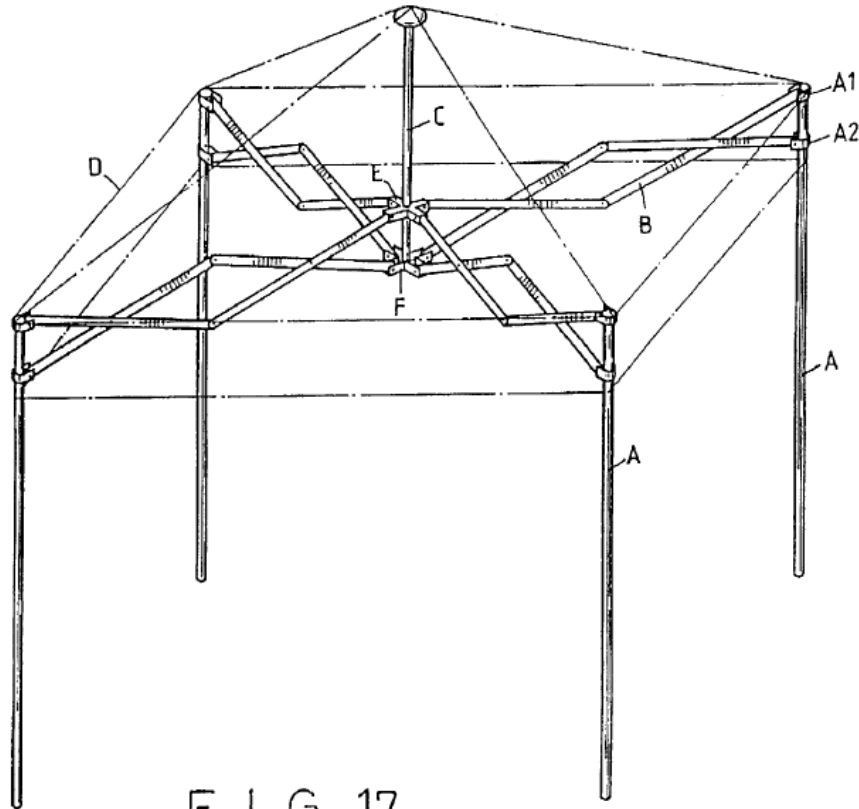


FIG. 17
(PRIOR ART)

Ex. 2015, Fig. 17. Figure 17 of Losi is “a perspective view of [a] prior collapsible shelter frame.” *Id.* at 3:51–52. According to Patent Owner, “Losi further describes that a sagging canopy results in ‘unsightly pockets where water can accumulate, reduc[ed] headroom and/or ultimately [] an unsightly shelter,’ expressly rebutting each of Petitioner’s alleged motivations to combine Yang and Lynch.” PO Resp. 32 (quoting Ex. 2015, 1:29–32; citing Rake Decl. ¶¶ 173–175). Patent Owner argues that “Losi confirms that [one of ordinary skill in the art] would understand that when a roof is supported solely by a central strut without more, as in Petitioner’s proposed modified Yang, the canopy sags, leading to a reduction in

headroom, pockets where water can accumulate (*i.e.*, a reduction in rainwater shedding), and an unsightly shelter.” *Id.* at 33 (citing Rake Decl. ¶¶ 171–175).

This argument does not identify a deficiency in the “increased headroom” reasoning that we determine to be persuasive above. Although Yang does reference the possibility of sagging in a canopy due to the use of a single center strut C to hold up the canopy (Ex. 2015, 1:55–59), Patent Owner and Mr. Rake are incorrect that Losi teaches that this sagging *causes* reduced headroom. *See, e.g.*, PO Resp. 33 (stating that “in Petitioner’s proposed modified Yang, the canopy sags, *leading to* a reduction in headroom” (emphasis added)); Rake Decl. ¶ 173 (stating that the proposed modification of Yang “would increase sagging, thereby reducing headroom”). Instead, the alleged sagging of the canopy and reduced headroom are *independent* issues identified by Losi in the prior art. Indeed, each statement in Losi discussing reduced headroom in the prior art relates to the presence of the “scissors-type linkage/center strut/connector structure”—shown as elements B, C, E, and F in prior art Figure 17 above—and how that structure is eliminated in the “invention” of Losi. *See* Ex. 2015, 1:50–53 (“In addition to being unstable, the scissors-type linkage/center strut/connector structure also reduces the headroom within the tent.”), 2:2–8 (“The central support post is itself supported by a pair of scissors-type linkages which extend across the interior of the shelter. This configuration reduces headroom within the shelter. Moreover, the lowest portion of each of the scissors-type linkage pairs is half way between the poles, thereby reducing headroom in the area that often serves as the entrance to a tent.”); *see also id.* at 1:29–32 (“Some prior shelter frames also

allow the canopy to sag and form unsightly pockets where water can accumulate, reduce tent headroom and/or ultimately produce an unsightly shelter.”), 2:15–18 (discussing avoiding sagging and increasing headroom separately), 2:38–43 (discussing increasing headroom by removing the internal structures).

Moreover, to the extent Patent Owner contends that *all* designs using a “center pole” to support a canopy lead to sagging, that draws into question how the applicant for the ’040 patent overcame such a problem when the issue does not appear to be discussed in that patent. *See Smith & Nephew, Inc. v. Rea*, 721 F.3d 1371, 1381–82 (Fed. Cir. 2013) (addressing a patent owner’s argument as to an alleged technical issue in the proposed combination, stating that “[t]his naturally raises the question of how [patent owner] managed to make such a combination work”), *cited at* Pet. Reply 16 n.2; Ex. 1001, 3:26–28 (discussing “stretching the roof” as shown in Figure 4). As discussed above, we do not view the ’040 patent as disclosing the presence of a tent canopy in tension, as asserted by Patent Owner. Further, even assuming the proposed modification caused some sagging and yet also increased total ceiling height, “a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006).

Next, Patent Owner argues that Petitioner “fails to even allege any reasonable expectation of success in its proposed combination.” PO Resp. 21. Although Petitioner does not use the phrase “reasonable expectation of success” in the Petition, Petitioner’s arguments and evidence establish a reasonable expectation of success. For example, Petitioner states that “apex

portion 50 of Lynch *could be readily substituted* for Yang’s roof bearing beam shaft 8 without impacting the function of the apex portion or the joints between the apex portion and the roof support members.” Pet. 36 (emphasis added) (citing Klopp Pet. Decl. ¶¶ 70–72). And in one of the cited paragraphs, Dr. Klopp discusses a “reasonable chance of success,” stating that one of ordinary skill in the art

would have seen nothing to suggest that combining features from Yang and Lynch involved anything more than simple mechanical substitutions of features and that the results of combining such features would . . . have more than a *reasonable chance of success* due to the relative simplicity of both Yang and Lynch’s features.

For an example of such a simple mechanical substitution, the center pole (apex portion 50) of Lynch could be readily substituted for Yang’s roof bearing beam shaft 8 without impacting the function of the apex portion or the joints between the apex portion and the roof support members.

Klopp Pet. Decl. ¶¶ 70–71 (emphasis added). For these reasons, we determine, in light of the complete record, that Petitioner has shown by a preponderance of the evidence that there would have been a reasonable expectation of success in the proposed modification.

We turn now to Patent Owner’s argument, in the Sur-reply, that the Petition provided only “*one sentence with no analysis*” as to the reasons to modify Yang with Lynch whereas, “[i]n Reply, Petitioner provides five pages of argument, over 20 pages of new expert testimony, and seven new exhibits addressing these same motivations.” PO Sur-reply 13. According to Patent Owner, “[t]his is improper under the Rules and the Board’s guidelines.” *Id.* at 13–14.

On the record here, we do not view the Reply as improper because, at least as to the “increased headroom” reasoning determined to be adequate above, Petitioner focuses the Reply discussion on distinguishing between total ceiling height and clear ceiling height, rather than providing new evidence in support of Petitioner’s original rationale. *See* Pet. Reply 18–20 (citing Klopp Reply Decl. ¶¶ 112–129). In other words, Petitioner responded to the arguments in the Patent Owner Response, and did not proceed in a “new direction with a new approach as compared to the positions taken in a prior filing.” TPG 74 (“Generally, a reply or sur-reply may only respond to arguments raised in the preceding brief. . . . While replies and sur-replies can help crystalize issues for decision, a reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.”).

For these reasons, we determine, in light of the complete record, that Petitioner has shown by a preponderance of the evidence that one of ordinary skill in the art at the time of the invention would have had reason to modify Yang based on Lynch, as proposed, that the articulated reasoning of “increased headroom” (Pet. 36) is supported by rational underpinning, and that there would have been a reasonable expectation of success in the proposed modification.

(8) Conclusion as to Claim 1

For the reasons above, we determine, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that claim 1 would have been obvious based on Yang and Lynch.

b. Claim 2

Claim 2 recites a “collapsible tent frame according to claim 1, wherein said rib members of the center pole ribs have a substantially equal length.” Ex. 1001, 4:42–44. To address this claim, Petitioner states, “As depicted in Figure 7 [of Yang], the roof support bars 7a and 7b (center pole ribs) each ‘have a substantially equal length.’” Pet. 44 (citing Klopp Pet. Decl. ¶ 89). In addition, Petitioner states that “Figure 8 of Yang shows that when the tent is fully collapsed, the edges of the rib members are flush at the top and the bottom” and that “[t]his configuration requires the center pole ribs to have equal length.” Pet. 45 (citing Klopp Pet. Decl. ¶ 89).

The record evidence, summarized above, supports Petitioner’s position. Patent Owner does not present additional arguments addressing this claim. We determine, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that claim 2 would have been obvious based on Yang and Lynch.

c. Claim 3

Claim 3 recites a “collapsible tent frame according to claim 2, further comprising a claw member disposed at a lower end of each side pole.” Ex. 1001, 4:45–47. To address this claim, Petitioner states that “Yang discloses ‘the lower end of the telescopic support column (2) [side pole] has a bottom stand piece (21) welded and fixed thereto to reinforce overall stability.’” Pet. 45–46 (alterations by Petitioner) (quoting Ex. 1004 at 8). In addition, Petitioner states that “Figure 12 of Yang illustrates the bottom stand piece 21, which is a claw member that is structurally the same as the claw member shown in the embodiments in Figures 3 and 4 of the ’040 [p]atent.” Pet. 46 (citing Klopp Pet. Decl. ¶¶ 93–95).

The record evidence, summarized above, supports Petitioner’s position. Patent Owner does not present additional arguments addressing this claim. We determine, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that claim 3 would have been obvious based on Yang and Lynch.

D. Additional Asserted Grounds of Obviousness

Petitioner contends that the challenged claims are rendered obvious, in the alternative to the combination of Yang and Lynch, by the combinations of (1) Yang and AAPA (claims 1–3), (2) Yang and Berg (claims 1–3), (3) Tsai and Lynch (claims 1–3), (4) Tsai and AAPA (claims 1–3), (5) Tsai and Berg (claims 1 and 2), and (6) Tsai, Berg, and Carter (claim 3). *See* Pet. 46–80; Pet. Reply 23–36. Because the ground based on Yang and Lynch is dispositive as to all of the challenged claims, we need not reach the additional asserted grounds. *See SAS*, 138 S. Ct. at 1359 (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (nonprecedential) (stating that the “Board need not address issues that are not necessary to the resolution of the proceeding,” such as “alternative arguments with respect to claims [the Board] found unpatentable on other grounds”); *SK Hynix Inc. v. Netlist, Inc.*, IPR2017-00692, Paper 25 at 40 (PTAB July 5, 2018) (determining all challenged claims to be unpatentable and not addressing additional grounds).

E. Patent Owner’s Motion to Exclude Evidence

Patent Owner filed a motion to exclude various exhibits and portions of exhibits relied on by Petitioner. *See* Paper 38. We address each argument in turn below.

1. Exhibit 1003

a. Portion of Paragraph 72

Patent Owner argues that we should exclude one statement in paragraph 72 of Exhibit 1003 (Dr. Klopp’s Petition Declaration): that the proposed “modification of Yang to include an extended center pole of Lynch would have provided benefits including increased headroom inside the tent (facilitating easier entry and exit by users).” Klopp Pet. Decl. ¶ 72, *quoted at* Paper 38 at 2. Patent Owner contends that Dr. Klopp contradicted this statement during his deposition, and thus

the quoted portion of his written testimony cannot be considered the product of reliable principles and methods and/or is the result of an unreliable application of the principles and methods to the facts of the case under [Federal Rule of Evidence (“FRE”)] 702, and the quoted portion of Dr. Klopp’s written testimony is also misleading and prejudicial under FRE 403.

Paper 38 at 2.

Although Patent Owner frames this argument as addressing *the entirety* of the statement from paragraph 72 of Dr. Klopp’s Petition Declaration quoted above, the argument actually relates to deposition testimony addressing only the phrase “facilitating easier entry and exit by users” in that paragraph. *See* Ex. 2033, 99:9–18 (Q. Would adding a center pole, as we’ve discussed, into the tent frame of Yang facilitate easier entry and exit by users from under the tent? A. Well, facilitate easier -- I don't think it would change it. Q. And is that because it wouldn't change the height of the scissor ribs 5A and 5B above the ground? A. Right.”). We dismiss in part, as moot, Patent Owner’s motion as to this statement because Petitioner does not rely on that phrase for its positions, and we do not rely on that phrase in this Decision. *See* Paper 39 (Petitioner discussing how the

phrase at issue “is not a basis for any argument made in the Petition or Reply” and that the “Petition and Reply do not argue that facilitating ease of entry or exit from the tent is a motivation to combine the prior art”); TPG 79–80 (“In the Board’s experience, consideration of the objected-to evidence is often unnecessary to resolve the patentability of the challenged claims, and the motion to exclude is moot.”).

2. *Exhibit 1025*

a. *Paragraphs 31–35*

Patent Owner argues that paragraphs 31–35 of Exhibit 1025 (Dr. Klopp’s Reply Declaration) are unreliable and not based on sufficient facts or data. *See* Paper 38 at 3–5. According to Patent Owner, Dr. Klopp’s deposition testimony and the list of “Additional Materials Considered” in his Reply Declaration show that he did not consider the District Court’s claim construction order (Ex. 1018) prior to filing his Reply Declaration, even though paragraph 22 of that Declaration provides that “[i]t is my understanding that this opinion removing any structural requirement from the term ‘center pole’ is very similar to the construction Patent Owner proposed and *was rejected by the District Court in the Underlying Litigation.*” Paper 38 at 3–4 (quoting Klopp Reply Decl. ¶ 22). Patent Owner argues that in paragraphs 31–35 of Dr. Klopp’s Reply Declaration, he opines that his original proposal that “constructed for stretching and sustaining a tent’s roof” means “made to heighten and hold up the tent covering” is “consistent with the plain and ordinary meaning,” but that the District Court “denied Petitioner’s same proposal” in its claim construction order. *Id.* at 4 (citing PO Resp. 6; Ex. 1018 at 10–11, 20). Thus, according to Patent Owner, “Dr. Klopp’s opinions in paragraphs 31–35 are not based

on sufficient facts and data as required by FRE 702 because he failed to review and consider the District Court’s claim construction order (Ex. 1018).” *Id.*

We do not exclude paragraphs 31–35 of Dr. Klopp’s Reply Declaration on this basis. As discussed above, we do not construe “stretching” as “to heighten”; thus, we do not affirmatively rely on the portions of any statement by Dr. Klopp that may allegedly run counter to statements by the District Court addressing that proposed construction of “stretching.” *See* Ex. 1018 at 10–11. Moreover, as noted by Petitioner, although the District Court was “not persuaded” by Petitioner’s arguments as to “stretching,” the Court declined to provide an express construction of “constructed for stretching or sustaining a tent’s roof.” *See id., cited at* Paper 39 at 5.

b. Paragraphs 50–53

Patent Owner argues that paragraphs 50–53 of Exhibit 1025 (Dr. Klopp’s Reply Declaration) are misleading, unreliable, and not based on sufficient facts or data. *See* Paper 38 at 6–8. We dismiss in part, as moot, Patent Owner’s motion as to these paragraphs because we do not rely on them in this Decision. *See* TPG 79–80.

3. Exhibits 1027–1033, 1036, and 1037

Patent Owner argues that Exhibits 1027–1033, 1036, and 1037 should be excluded. Paper 38 at 8–14. We dismiss in part, as moot, Patent Owner’s motion as to these exhibits because we do not rely on them in this Decision. *See* TPG 79–80.

III. CONCLUSION

Upon consideration of the briefing and the evidence of record, we determine that Petitioner has proven by a preponderance of the evidence that claims 1–3 would have been obvious to one of ordinary skill in the art based on Yang and Lynch, and we need not reach the additional grounds presented.²⁵

IV. ORDER

For the reasons above, it is:

ORDERED that Petitioner has proven by a preponderance of the evidence that claims 1–3 are unpatentable;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 318(b), upon expiration of the time for appeal of this decision, or the termination of any such appeal, a certificate shall issue canceling claims 1–3;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is denied in part and dismissed in part; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

²⁵ Should Patent Owner wish 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, 84 Fed. Reg. 16,654 (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).

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1-3	103(a)	Yang, Lynch	1-3	
1-3	103(a)	Yang, AAPA ²⁶		
1-3	103(a)	Yang, Berg		
1-3	103(a)	Tsai, Lynch		
1-3	103(a)	Tsai, AAPA		
1, 2	103(a)	Tsai, Berg		
3	103(a)	Tsai, Berg, Carter		
Overall Outcome			1-3	

²⁶ As explained above, we do not reach any of the grounds other than the asserted ground of obviousness based on Yang and Lynch.

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