

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BESTWAY (USA), INC.,
Petitioner

v.

INTEX MARKETING LTD.,
Patent Owner

Case PGR2017-00003
Patent No. 9,254,240 B2

PATENT OWNER'S NOTICE OF APPEAL

PGR2017-00003
Patent Owner's Notice of Appeal

Pursuant to 35 U.S.C. §§ 141, 142, and 319, and in accordance with 37 C.F.R. §§ 90.2-90.3, Patent Owner Intex Recreation Corp. appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board entered on November 7, 2018 in Case PGR2017-00003 (Paper 54), and from all underlying findings, determinations, rulings, opinions, orders, and decisions regarding Ground 1 of that post-grant review of U.S. Patent No. 9,254,240.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Patent Owner states that the issues for appeal include, but are not limited to: the Board's determination under Ground 1 that "Petitioner has demonstrated by a preponderance of the evidence that claims 1-7 and 17 of the '240 patent are unpatentable under 35 U.S.C. § 103 as obvious over Peterson and Fireman," as recited in the Final Written Decision; the Board's consideration of the expert testimony, prior art, and other evidence in the record; and the Board's factual findings, conclusions of law, and other determinations supporting or relating to its findings on Ground 1.

This Notice of Appeal is being electronically filed with the Clerk's Office for the United States Court of Appeals for the Federal Circuit along with payment of the required docketing fees. In addition, Patent Owner's Notice of Appeal is being filed simultaneously with the Patent Trial and Appeal Board and with the

PGR2017-00003
Patent Owner's Notice of Appeal

Director of the United States Patent and Trademark Office.

FAEGRE BAKER DANIELS LLP

Dated: January 9, 2019

By: /Andrew M. McCoy/
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CERTIFICATE OF SERVICE

I certify that on January 9, 2019, Patent Owner's Notice of Appeal was electronically filed through the Patent Trial and Appeal Board's E2E system, and filed by Express Mail with the Director of the United States Patent and Trademark Office at the following address:

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

I further certify that on January 9, 2019, Patent Owner's Notice of Appeal was filed, and the required docket fee paid, with the Clerk's Office for the United

PGR2017-00003
Patent Owner's Notice of Appeal

States Court of Appeals for the Federal Circuit through the Court's CM/ECF system.

I further certify that, pursuant to 37 C.F.R. § 42.6(e) and Petitioner's agreement to accept electronic service, on January 9, 2019, I caused a true and correct copy of Patent Owner's Notice of Appeal to be served via email to the following:

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BESTWAY (USA), INC.,
Petitioner,

v.

INTEX MARKETING LTD.,
Patent Owner.

Case PGR2017-00003
Patent 9,254,240 B2

Before KEN B. BARRETT, GEORGE R. HOSKINS, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 328(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. *Background and Summary*

Bestway (USA), Inc. (“Petitioner”) filed a Petition requesting post-grant review of claims 1–7, 17–22, and 30 of U.S. Patent No. 9,254,240 B2 (“the ’240 patent,” Ex. 1001). Paper 1 (“Pet.”). The Petition contains challenges identified by Petitioner as Grounds 1, 2, and 3. *See, e.g., id.* at ii (Table of Contents). Intex Marketing Ltd. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 7 (“PO Prelim. Resp.”).

On May 11, 2017, a post-grant review was instituted on Petitioner’s challenge of claims 1–7 and 17 under 35 U.S.C. § 103 as unpatentable over Peterson and Fireman (Ground 1). Paper 9 (“Inst. Dec.”), 21. However, the instituted review did not include Petitioner’s obviousness challenge of claims 18–22 and 30 based on Peterson, Fireman, and Guan ’797 (Ground 2), or Petitioner’s obviousness challenge of claims 19–22 based on Peterson, Fireman, Guan ’797, and Wang ’615 (Ground 3). *Id.*

On May 25, 2017, Petitioner filed a request for rehearing of our decision denying institution as to Grounds 2 and 3. Paper 12 (“Reh’g Req.”). We denied Petitioner’s request for rehearing on June 20, 2017. Paper 15 (“Denial of Reh’g Req.”).

The parties subsequently fully briefed the issues involving Ground 1. Paper 17 (Patent Owner’s Response to the Petition, “PO Resp.”), Paper 21 (Petitioner’s Reply, “Pet. Reply”). The first of two oral arguments was held on February 5, 2018, and a transcript is included in the record. Paper 29 (“First Hr’g Tr.”).

On April 24, 2018, the Supreme Court issued its decision in *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018). On May 2, 2018, we issued an order modifying our institution decision to institute on all of the challenged claims and all of the grounds presented in the Petition. Paper 30. An extension of the one-year period for issuing a Final Written Decision in this proceeding was granted. Paper 31 (Grant of Good Cause Extension); *see also* Paper 32 (corresponding Order).

We, thereafter, issued an order allowing any further discovery agreed-upon by the parties and authorizing additional briefing on Grounds 2 and 3. Paper 33. Specifically, we authorized Patent Owner to file either a Supplemental Response addressing Grounds 2 and 3 or a statement indicating it would rely on its arguments made in the Preliminary Response, and we authorized Petitioner to file a Supplemental Reply. *Id.* at 5–7. Patent Owner opted to rely on the arguments made in its Preliminary Response regarding Grounds 2 and 3 rather than filing a Supplemental Response.¹ Paper 34. Petitioner filed a Supplemental Reply. Paper 41 (“Pet. Supp. Reply”). A second oral argument was held on August 1, 2018, and a transcript is included in the record. Paper 50 (“Second Hr’g Tr.”).

We have jurisdiction under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 328(a). For the reasons discussed below, we determine that Petitioner *has proven* by a preponderance of the evidence that claims 1–7 and 17 of the ’240 patent are unpatentable. We

¹ We indicated that, in light of the unusual posture of this case, we would *not* deem arguments in the Patent Owner’s Preliminary Response regarding Grounds 2 and 3 waived for failure to file a post-institution response as to those grounds. Paper 33, 5.

also determine that Petitioner *has not proven* by a preponderance of the evidence that claims 18–22 and 30 of the ’240 patent are unpatentable.

B. Related Proceedings

One or both parties identify, as matters involving or related to the ’240 patent, *Intex Recreation Corp. v. Bestway USA, Inc. et al*, Civil Action No. 2:16-cv-03950 (C.D. Cal.), *Intex Recreation Corp. v. Bestway USA, Inc. et al*, Civil Action No. 2:16-cv-03300 (C.D. Cal.), and *Intex Recreation Corp. v. Bestway USA, Inc. et al*, Civil Action No. 2:16-cv-03483 (C.D. Cal.). Pet. 2–3, Papers 5, 11.

Petitioner filed another petition seeking *inter partes* review of claims 18–22 and 30 of the ’240 patent in Patent Trial and Appeal Board Case IPR2017-01655 (Paper 1). In that case, the Board exercised its discretion under 35 U.S.C. § 314(a) to not institute an *inter partes* review. IPR2017-01655, Paper 9.

C. The ’240 Patent

The ’240 patent is titled “Inflatable Spa.” The ’240 patent issued February 9, 2016, from U.S. Application No. 14/444,474 (“the ’474 application”), filed July 28, 2014. Ex. 1001, (21), (22), (45). The ’474 application is a continuation of PCT/US2014/047252, filed July 18, 2014. *Id.*, (63), 1:6–7. The ’240 patent claims priority to several Chinese patent applications, the earliest filing date of such being July 18, 2013. *Id.*, (30), 1:9–28.²

² Because the earliest possible effective filing date for the ’240 patent is after March 16, 2013 (the effective date for the first inventor to file provisions of

As the title indicates, the '240 patent is directed to an inflatable spa.

Figure 1 of the '240 patent is reproduced below:

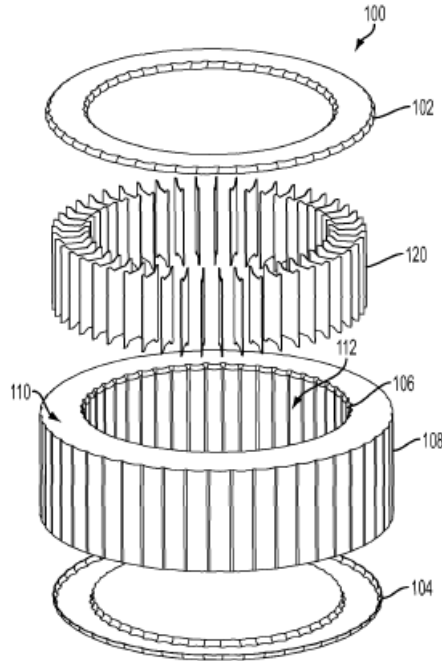
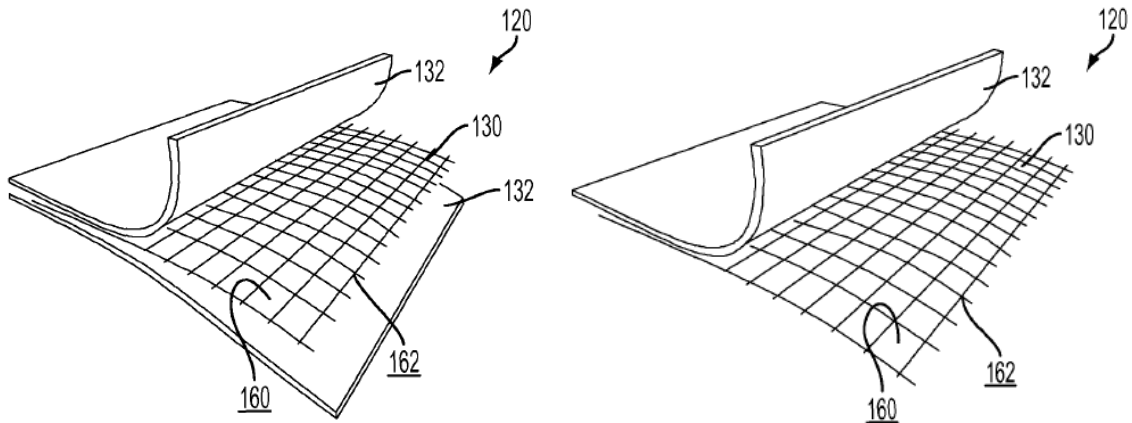


Figure 1 is an exploded perspective view of an inflatable spa, including tensioning structures. Ex. 1001, 4:27–29. The inflatable spa 100 has internal wall 106 and external wall 108 that together, along with top and bottom walls (102 and 104, respectively), define inflatable air chamber 110. *Id.* at 5:60–6:9. Tensioning structures 120 couple the inner and outer walls, and may have gaps at the top and bottom. *Id.* at 6:30–38.

Figures 5 and 6 of the '240 patent are reproduced below:

the America Invents Act) and the Petition was filed within 9 months of its issue date, the '240 patent is eligible for post-grant review. *See* 35 U.S.C. § 321(c).



Figures 5 and 6 are exploded perspective views of the tensioning structure including a porous layer and, respectively, two attachment layers and a single attachment layer. *Id.* at 4:36–39. Each tensioning structure may include “porous layer or sheet” 130 and attachment layer or sheet 132, with the porous layer sandwiched between two attachment layers (as shown in Figure 5) or attached to a single attachment layer (as shown in Figure 6). *Id.* at 6:39–50.

Figure 4 of the '240 patent is reproduced below:

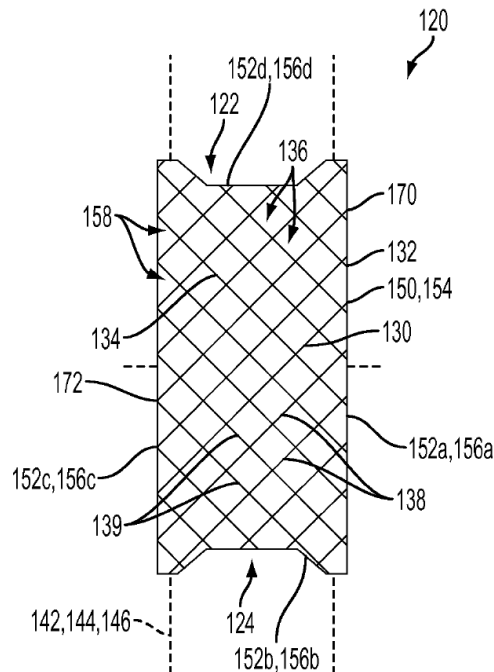


Figure 4 is an elevational view of tensioning structure 120 having attachment layer 132 and porous layer 130. *Id.* at 4:34–35, 6:51–57. Porous layer 132 may be formed from ligaments or frame members 134 that define holes or pores 136. *Id.* at 6:64–66. The porous layer may be constructed of a mesh, cloth, or screen of interwoven members. *Id.* at 7:39–52. “When the air chamber 110 is pressurized, frame members 134 . . . may be placed in tension to help maintain the shape of spa 100.” *Id.* at 6:66–7:1.

In the embodiment of Figure 4, porous layer 130 includes outer perimeter 150 formed by edges 152a-d, and attachment layer 132 includes outer perimeter 154 formed by edges 156a-d. *Id.* at 6:53–57. “The attachment layer 132 may span across the entire porous layer 130, as shown in FIG. 4, such that the outer perimeter 154 of the attachment layer 132 generally overlaps the outer perimeter 150 of the porous layer 130.” *Id.* at 6:57–61.

D. Illustrative Claim

Of the challenged claims, claim 1 is the sole independent claim. The remaining challenged and instituted claims depend directly from claim 1.

Claim 1, reproduced below, is illustrative:

1. An inflatable product comprising:
 - a first wall;
 - a second wall;
 - an inflatable air chamber defined by the first wall and the second wall; and
 - a plurality of tensioning structures located in the air chamber and coupled to the first wall and the second wall, each tensioning structure including:
 - at least one attachment sheet having an outer perimeter;
- and

a porous sheet coupled to the at least one attachment sheet, the porous sheet having an outer perimeter that substantially overlaps the outer perimeter of the at least one attachment sheet, the porous sheet including a plurality of enclosed pores located entirely within the outer perimeter of the at least one attachment sheet and a plurality of frame members that intersect to define the plurality of enclosed pores.

Ex. 1001, 19:2–19.

E. Evidence

Petitioner relies on the following prior art references:

Reference		Dates	Ex. No.
Peterson	US 5,924,144	Filed Apr. 2, 1998; Issued July 20, 1999	Ex. 1002
Fireman	US 2004/0040082 A1	Filed Feb. 6, 2003; Published March 4, 2004	Ex. 1003
Guan Hou-De ("Guan '797")	CN 2064797U	Filed Feb. 15, 1990; Published Oct. 31, 1990	Ex. 1004
Wang Zhi-Yue ("Wang '615")	CN 202051615U	Filed Mar. 3, 2011; Published Nov. 30, 2011	Ex. 1005

Petitioner also relies on the declaration of Dr. Ali M. Sadegh, dated Nov. 7, 2016, (Ex. 1011) in support of its arguments. Patent Owner relies on the declaration of Mr. Bernhard Kuchel, dated Feb. 16, 2017, (Ex. 2001) and the supplemental declaration of Mr. Bernhard Kuchel, dated Aug. 11, 2017, (Ex. 2039) in support of its arguments. The parties rely on other exhibits as discussed below.

F. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 24):

References	Basis	Claims
Peterson and Fireman	§ 103	1–7, 17
Peterson, Fireman, and Guan '797	§ 103	18–22, 30
Peterson, Fireman, Guan '797, and Wang '615	§ 103	19–22

II. ANALYSIS

A. Principles of Law

Petitioner bears the burden of proving unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Cf. Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing burdens in the context of *inter partes* review). To prevail, Petitioner must establish the facts supporting its challenge by a preponderance of the evidence. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) any objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. The Level of Ordinary Skill in the Art

The parties agree, as do we, that the relevant field is that pertaining to inflatable products. *See* PO Resp. 31; Pet. 1–2; *see also* Ex. 2001 ¶ 93; Ex. 1011 ¶ 36.

Petitioner’s expert, Dr. Sadegh, opines that:

A person of ordinary skill in the art of inflatable products would have at least a bachelor’s degree in mechanical engineering, or an equivalent field, and two to four years of practical experience in product design, manufacturing, and related materials.

Ex. 1011 ¶ 37; *see also* Pet. 10–11. Patent Owner’s expert, Mr. Kuchel, offers an opinion that “differs slightly from Dr. Sadegh’s opinion.”

Ex. 2001 ¶ 94; *see also* PO Resp. 31–32. Specifically, Mr. Kuchel opines that the ordinary artisan in the field of inflatable products would have either: 1) a bachelor’s degree and two years of experience, or 2) an associate’s degree and four years of experience. Ex. 2001 ¶ 94.

We discern no material difference between the two experts’ definitions. Dr. Sadegh’s definition is consistent with the level of ordinary skill reflected in the prior art references of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself may reflect an appropriate level of skill in the art). We adopt Dr. Sadegh’s definition of the person of ordinary skill in the art.

C. Claim Construction

In a post-grant review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.200(b) (2018). Under a broadest reasonable interpretation, words of the claim must be given their

plain meaning, unless such meaning is inconsistent with the specification and prosecution history.” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016). Additionally, only terms that are in controversy need to be explicitly construed, and these need be construed only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner initially proposed constructions for “notches” and “notch-defining portions,” terms appearing in claims 19–22. Pet. 21–24; *cf.* Prelim Resp. 64–70 (Patent Owner’s discussion of the same). For the purposes of the Institution Decision, we determined that, based on the record at that time, our resolution of the issues did not turn on the meaning of those terms, and we determined that no claim term required express construction. Inst. Dec. 8. We discuss below, in the analysis of Grounds 2 and 3, Petitioner’s assertions regarding the meaning of certain claim terms. We, however, determine that no claim terms require express construction here in order to resolve the dispositive issues.

*D. The Alleged Obviousness of
Claims 1–7 and 17 Over Peterson and Fireman (Ground 1)*

Petitioner argues that claim 1–7 and 17 of the ’240 patent would have been obvious over Peterson and Fireman. Pet. 24–45. In particular, Petitioner contends that Peterson teaches the subject matter of independent claim 1 except for the use of a multi-layer mesh material (a porous sheet) as its tensioning structure and turns to Fireman for the teaching of such a material. Pet. 24–25. Patent Owner’s arguments in response indicate that the primary disputes in this case pertain to whether one of ordinary skill in the art would have reason to combine the references’ teachings and whether

the resulting combination's porous sheet would satisfy what Patent Owner calls "the Substantial Overlap Limitation." *See* PO Resp. 32, 55.

1. *Peterson (Ex. 1002)*

Peterson discloses an inflatable swimming pool. Ex. 1002, Abstract. Figure 4 of Peterson is reproduced below:

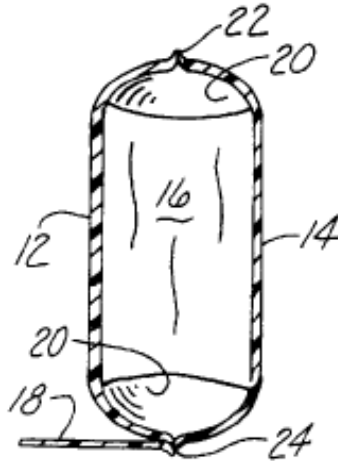


Figure 4 is a sectional view of the side of the inflatable pool. *Id.* at 1:55–61. The pool has “a plurality of interconnecting vertical support webs 16” connecting the inner and outer vertical side walls 12, 14. *Id.* at 2:4–8, Figs. 2, 4. The inner and outer side walls are attached together at their top and bottom edges 22 and 24. *Id.* at 2:8–11. The components of the pool, including the vertical support webs, are formed of polyvinylchloride (PVC) and are secured together by thermo-welding. *Id.* at 2:4–8. Peterson explains: “The support webs 16 forming the I-beam support columns provide increased strength to the inflated pool 10 so that water of greater depths can be supported within the pool 10 before the side walls 12, 14 deform.” *Id.* at 2:25–29.

2. *Fireman* (Ex. 1003)

Fireman pertains to a self-rising swimming pool utilizing an inflatable toroidal top member that, when inflated, raises the flexible wall as water fills the pool. Ex. 1003, Abstract, ¶ 2. *Fireman* explains that the walls of earlier self-rising pools were constructed of thick layers of opaque material to provide the necessary strength to withstand the hydraulic pressure of the pool water and that this resulted in undesirably opaque walls. *Id.* ¶ 2. Such opacity prevented outside observers from seeing fully the occupants of the pool. *Id.* To address this, *Fireman* discloses “self-rising swimming pool constructions employing side walls sufficiently translucent to allow those outside the swimming pool to monitor the underwater activities of the swimming pool’s occupants.” *Id.* ¶ 3.

Fireman teaches the use of a wall comprised of mesh interposed between two layers of translucent material of the type “used in the construction of inflatable and self-rising swimming pools,” such as PVC. *Id.* ¶¶ 5, 19. Figure 5A of *Fireman* is reproduced below:

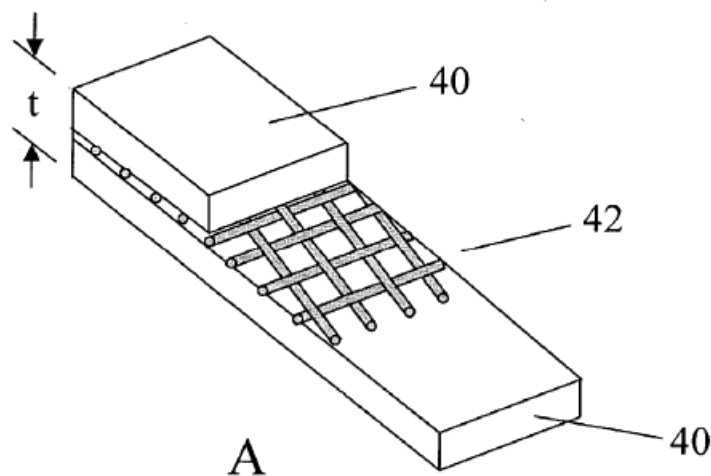


Figure 5A is a schematic cutaway view of a three-layer construction of a swimming pool’s flexible side wall or side wall panels. Ex. 1003 ¶¶ 13, 19.

Fireman explains: “The mesh layer 42 enhances the tensile strength of the flexible wall 12, increasing the durability of the structure and allowing larger swimming pools to be constructed, compared to flexible walls made without a reinforcing mesh layer.” *Id.* ¶ 19.

3. *The Alleged Obviousness of Claim 1*

a) *An inflatable product with tensioning structures and a porous sheet coupled to attachment sheets*

Claim 1 recites an inflatable product having first and second walls, an inflatable air chamber defined by those walls, and a plurality of tensioning structures located within the air chamber and coupled to both of the walls. There is no dispute that Peterson teaches these limitations. Pet 24–28 (citing Ex. 1011 (Dr. Sadegh’s Declaration) ¶¶ 101–109); *see* PO Resp. 10; Ex. 1025, 37:1–38:19 (Patent Owner’s expert, Mr. Kuchel, agreeing that all of the limitations of claim 1, except for the “porous sheet limitations,” are disclosed by Peterson). In particular, the parties agree that Peterson’s PVC “interconnecting vertical support webs 16” constitute tensioning structures. Pet. 27; PO Resp. 12. Petitioner contends that Peterson’s tensioning structures include the recited “attachment sheet” because support webs 16 attach to and interconnect the inner and outer side walls of the pool. Pet. 28 (citing Ex. 1011 ¶¶ 110–111).

The last recitation of claim 1, with the disputed aspect emphasized, provides:

a porous sheet coupled to the at least one attachment sheet, *the porous sheet having an outer perimeter that substantially overlaps the outer perimeter of the at least one attachment sheet*, the porous sheet including a plurality of enclosed pores located entirely within the outer perimeter of the at least one

attachment sheet and a plurality of frame members that intersect to define the plurality of enclosed pores.

Ex. 1001, 12–19 (emphasis added). Petitioner asserts that Fireman teaches this subject matter, Pet. 29, and much of the language quoted above is not in dispute. *See* PO Resp. 36–37 (describing Fireman’s “3-layer composite.”). As mentioned above, Fireman discloses a material constructed of a mesh layer sandwiched between two PVC layers. Ex. 1003 ¶ 19. Petitioner contends, and we agree, that Fireman’s mesh layer corresponds to the claimed “porous sheet” and the PVC layers correspond to the “at least one attachment sheet.” Pet. 30.

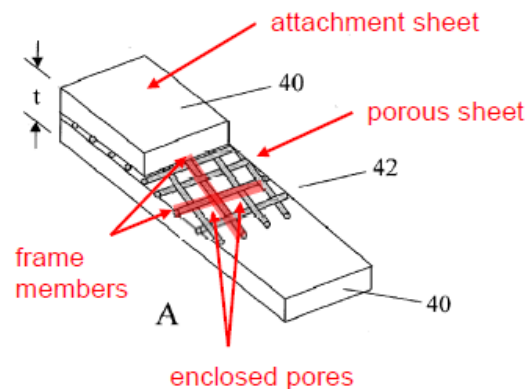
b) The “Substantial Overlap Limitation”

The disputed limitation is that of “the porous sheet having an outer perimeter that substantially overlaps the outer perimeter of the at least one attachment sheet.” Patent Owner calls this the “Substantial Overlap Limitation.” PO Resp. 38. The Specification indicates that there are overlapping perimeters when the attachment layer spans across the entire porous layer. Ex. 1001, 6:57–61; *see* First Hr’g Tr. 16:18–24 (counsel for Patent Owner stating that “substantial overlap” “means that they are the same size layers, the PVC and the mesh.”).

For this limitation, Petitioner relies on Fireman’s Figure 5 and the testimony of Dr. Sadegh. Pet. 29–31 (citing Ex. 1003, Fig. 5; Ex. 1011 ¶¶ 112–116). Dr. Sadegh testifies credibly that multi-layer materials of mesh sandwiched between solid layers were well-known in various industries, including the inflatable products industry. Ex. 1011 ¶ 113; *see id.* ¶¶ 82–99. Dr. Sadegh explains that, “[g]iven that the layers of such multi-ply material are joined together to form a single sheet that is

eventually cut to the proper dimensions, each layer is similarly-sized and the outer perimeters of the two layers, therefore, substantially overlap.” *Id.*

¶ 113. Petitioner asserts that Fireman teaches such a multi-ply material used in pools and that Fireman’s Figure 5A shows the claimed features pertaining to the porous sheet coupled to attachment sheets. Pet. 29–31. Dr. Sadegh provides the following annotated version of Figure 5A:



Ex. 1011 ¶ 115. The above annotated version of Figure 5A “illustrates a schematic cutaway view of the three-layer construction [of Fireman],” Ex. 1003 ¶ 19, with annotations indicating Dr. Sadegh’s opinions as to the components corresponding to the attachment sheet, porous sheet, frame members, and enclosed pores, Ex. 1011 ¶¶ 115–116. Dr. Sadegh testifies that, “[a]s expected for this type of multi-ply material and as shown in Figure 5 [of Fireman], the mesh layer extends to the edges of the solid PVC sheet in order to form a single sheet of material” and, therefore, there is substantial overlap in the perimeters of the multiple layers. Ex. 1011 ¶ 116.

We find Dr. Sadegh to testify credibly as to how fiber-reinforced material used in the inflatable products industry is constructed, that one of ordinary skill in the art would expect the mesh layer to extend to the edges of the solid PVC sheets, and that components are cut from the formed single

sheet, and, thus, would appear as shown in Fireman’s Figure 5A—with coextensive mesh and PVC perimeters. Ex. 1011 ¶¶ 113, 116.³

Patent Owner, relying on the testimony of its expert, Mr. Kuchel, contends that Fireman fails to satisfy the Substantial Overlap Limitation. PO Resp. 41 (citing Ex. 2001; Ex. 2039). Specifically, Patent Owner argues that Fireman does not state explicitly that its layers all have the same dimensions and that Figure 5A, being a “cutaway” and “sectional view of only a portion of Fireman’s wall,” does not depict the perimeters of the actual component. *Id.* at 40. Thus, argues Patent Owner, “because it does not show the outer perimeters, it *cannot* teach that those perimeters ‘substantially overlap.’” *Id.* at 41 (citing Ex. 2001 ¶¶ 130–132; Ex. 2039 ¶ 46). Similarly, Patent Owner argues that the depiction in Figure 5A of each layer cut back from the layer beneath (giving the stair-step appearance) further indicates that the mesh layer does not extend the full length of the lower layer. *Id.* at 41–42 (citing, *inter alia*, Ex. 2039 ¶ 47).

We note that the relied-upon portions of Mr. Kuchel’s declarations reflect the opinion that “Figure 5A does not *expressly* disclose the limitation.” Ex. 2001 ¶ 132 (emphasis added). However, the cited testimony does not appear to take into account how the person of ordinary skill in the art would understand the teachings and suggestions of Fireman and lacks credible testimony that persuades us that one of ordinary skill in

³ Although Patent Owner criticizes Dr. Sadegh for allegedly “focus[ing] on composites,” Patent Owner does not contest Dr. Sadegh’s qualifications to offer expert testimony as to the understanding of the person of ordinary skill in the art. First Hr’g Tr. 18:9–19:11.

the art—particularly one familiar with multi-layer materials⁴—would read a schematic depiction so literally. *See* Ex. 2039 ¶¶ 46–47.

Dr. Sadegh testified that, to one of ordinary skill in the art, Fireman’s Figure 5A is “representing that the mesh is all around between the two pieces, top and the bottom [layers], number 40.” Ex. 2038, 137:23–138:15. Mr. Kuchel, consistent with Dr. Sadegh’s position, Ex. 1011 ¶ 113, agreed that “bulk uniform mesh-reinforced laminate material was well known,” Ex. 1025, 63:8–15, and that a tensioning structure cut from a bulk sheet of uniform PVC/mesh layering would satisfy the substantial overlap limitation, *id.* at 40:5–42:14.

Patent Owner asserts that fiber-reinforced laminate sheets could be manufactured in such a manner that the mesh might not extend to the full perimeter of the other layers. PO Resp. 43–45, 47. Patent Owner argues that this proves that it is not necessarily true that mesh always has an overlapping perimeter with the attachment layers and reflects a flaw in Dr. Sadegh’s testimony as to how composite sheets are manufactured. *Id.* (referring to Ex. 1011 ¶ 113). However, Dr. Sadegh was, as Patent Owner acknowledges, “speaking generally” about material forming, *id.* at 43–44,

⁴ Mr. Kuchel, Patent Owner’s expert, testified that persons of ordinary skill in the art were aware of such materials. *E.g.*, Ex. 1025, 15:25–16:6 (agreeing mesh-reinforced laminates were well known to inflatable products designers prior to 2013); Ex. 2001 ¶ 42 (“Multi-layer or multi-ply materials, therefore, were a natural design choice a POSA would have considered when designing the external flexible membrane for these types of pools.”); *id.* ¶ 54 (“a POSA would have known of the various types of above-ground pool options, would have known that multi-ply materials have been used in the walls of above-ground pools (and other structures) for over a decade . . .”).

and, further, the existence of alternative manufacturing methods in hypothetical situations does not undermine the ordinary artisan's understanding that Fireman's component, which would be cut from the larger sheet, would have had the requisite substantially overlapping perimeters. Similarly, Patent Owner's arguments as to why a literal reading of Figure 5A does not inherently⁵ disclose the substantial overlap limitation is not persuasive. *See* PO Resp. 47–54.

In the context of its attack on an inherency theory, Patent Owner notes that Fireman's goal was to create a pool with a partially translucent wall such that the pool occupants might be observed from outside the pool. *Id.* at 49 (citing Ex. 1003, Abstract, ¶ 18). In this regard, Fireman states: "In the exemplary embodiment, at least a portion of the flexible wall 12 is made of material sufficiently translucent to allow those outside the pool to monitor the underwater activities of the swimming pool's occupants, enhancing the safety of the swimming pool." Ex. 1003 ¶ 18. Based on this, Patent Owner argues that Fireman teaches that the mesh does not extend completely throughout the translucent portion, and further argues that having mesh coextensive with the translucent PVC layers would be contrary to Fireman's design objectives. PO Resp. 48–50. Mr. Kuchel testifies that "the three-layer composite would, for example, hinder and obscure the view of the pool's occupants." Ex. 2039 ¶ 48 (citing Ex. 2038, 81:23–25, 83:20–24, 169:24–170:8).

⁵ Patent Owner prefaces its attack on an inherency argument in the Response to the Petition with an apparent acknowledgment that such an argument was not made in the Petition. *See* PO Resp. 47–48.

We do not find Patent Owner’s arguments or Mr. Kuchel’s testimony persuasive. Fireman’s disclosed invention is a construction “*sufficiently translucent* to allow those outside the swimming pool to monitor the underwater activities of the swimming pool’s occupants.” Ex. 1003 ¶ 3 (emphasis added). Fireman’s contribution is the replacement of the prior art’s relatively thick, opaque layers with a mesh layer in combination with transparent PVC layers. *Id.* ¶ 5. One of ordinary skill in the art would recognize that the presence of mesh would have resulted in some acceptable level of diminished transparency but also would provide the benefit of increased strength. *See* Ex. 2039, 81:15–83:24; *id.* at 81:15–22 (Dr. Sadegh testifying that, depending on the density of the mesh, there would not be much effect on the translucence of the composite material).

Patent Owner further argues, still in the context of inherency, that there might be a reason to not have mesh extending to the edges of the PVC sheets. PO Resp. 50–54. Patent Owner argues that there are benefits to not having coextensive mesh and PVC layers and that these benefits would have deterred a person of ordinary skill in the art from pursuing a design where the three layers have the same dimensions. *Id.* at 51 (citing Ex. 2039 ¶ 58). This deterrence theory appears to be premised on the unpersuasive view, discussed above, that Fireman teaches away from using mesh with translucent PVC. *See* Ex. 2039 ¶ 58 (Mr. Kuchel opining that “[a] POSA would have been deterred . . . , especially in view of Fireman’s teaching.”); PO Resp. 53–54 (arguing that Fireman’s “translucence goal” and statement that “at least a portion” of the pool wall may be comprised of the three-layer composite would deter a person of ordinary skill in the art from having overlapping perimeters). Patent Owner, relying on the testimony of

Mr. Kuchel, argues that “raw edges” of mesh in an overlapping perimeter configuration would have various problems such as wicking involving “external debris and liquid” and a less clean and professional appearance. PO Resp. 52–53 (citing, *inter alia*, Ex. 2039 ¶ 59).

Even if there are certain recognized problems with having coextensive layers, those do not negate a finding that Fireman discloses, to a person of ordinary skill in the art, a material where a component cut therefrom would have coextensive perimeters. To the extent that Patent Owner’s arguments are directed to the reason to combine the references in an obviousness analysis, we do not find them persuasive. For example, neither Patent Owner nor its expert explains adequately why a lack of a professional appearance or wicking due to *external* debris and liquid would be a problem for a tensioning structure located *inside* an air chamber.

Having considered the parties’ arguments and the evidence, we find that a person of ordinary skill in the art would understand Fireman to disclose, or at least suggest, that components cut from Fireman’s mesh-reinforced material would have a porous sheet with an outer perimeter that substantially overlaps that of the attachment sheets. We further find that the use of Fireman’s material for the support web of Peterson, as in Petitioner’s proposed combination, satisfies the “tensioning structure” limitation of claim 1, including the Substantial Overlap Limitation.

c) Reason to Combine the References’ Teachings

Petitioner’s proposed combination utilizes Fireman’s multi-ply PVC and mesh material for the tensioning structure of Peterson, which is a single-ply PVC material. *See* Pet. 31. Through its arguments, Petitioner

offers several reasons why the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art. *See id.* at 24–25, 31–34.

As an initial matter, it is noteworthy that much is undisputed regarding the knowledge of the person of ordinary skill in the art. Patent Owner concedes that the claimed invention is in a crowded art, the strength of various pool components was of concern to persons of ordinary skill in the art, and such persons were aware of several options to increase the strength of a pool and knew to balance design considerations such as flexibility, rigidity, and ease of assembly. PO Resp. 3, 6–31; *see id.* at 15–16 (“the POSA considers all aspects of the design as a whole, including materials, manufacturing, functionality, performance, etc.—and weighs the pros and cons of each design option”); *id.* at 81 (“[A] as part of that [design] process, a POSA would consider numerous design options (not just one), and would weigh the pros and cons of each option.”). Patent Owner acknowledges that the use of multi-ply materials was known to persons of ordinary skill in the art as a way to strengthen certain types of pools, arguing that “[m]ulti-layer or multi-ply materials . . . were a natural design choice a POSA would have considered when designing the *external* flexible membrane for [flexible membrane sidewall] pools.” *Id.* at 8 (emphasis in original) (citing Ex. 2001 ¶¶ 40–43); *id.* at 13 (citing Ex. 2001 ¶ 54) (“Nor is there any dispute that multi-ply materials had been used to manufacture *pool walls* for over a decade.”). Patent Owner also acknowledges that multi-ply materials were used in the external walls of self-rising pools because there was a need for a material strong enough to, *inter alia*, withstand the forces imparted by the water. *Id.* at 9. In inflatable pools, tensioning structures were known to “contribute[] to the water pressure sustaining capacity of the

pool.” *Id.* at 10 (citing Ex. 2001 ¶¶ 48–53; Ex. 1002 (Peterson), 2:25–29; Ex. 1004 (Guan ’797), Abstract, ¶¶ 10, 11); *see also id.* at 13 (citing Ex. 2001 ¶ 54) (“[T]here is no dispute that, as of the ’240 Patent’s July 2013 priority date, tensioning structures had been used in inflatable pools for over 20 years.”). Patent Owner also points out that inflatable pools were known to use a single-layer mesh cloth as the internal tensioning structure. *Id.* at 13 (citing Ex. 1005, 12, and explaining that Wang ’615 used mesh tensioners internally and a multi-layer PVC composite for the inner and outer walls). Patent Owner, as well as Petitioner, identifies Wang ’755 (Ex. 1007) as an example of a known prior art tensioning structure. *Id.* at 29; Ex. 2001 ¶ 65 (page 57) (Mr. Kuchel identifying the same); *see also* Ex. 1025, 55:19–57:1 (Mr. Kuchel testifying that one of ordinary skill would have looked to Wang ’755 to learn about internal tensioning structures); Pet. 16–17, 34. Wang ’755 teaches a tensioning structure of mesh sandwiched between two PVC layers. *See* Ex. 1007, 11 (Abstract), 15, Fig. 2. With that as background, we turn to Petitioner’s arguments.

Petitioner (Pet. 32) points to Peterson’s teaching that tensioning structures “provide increased strength to the inflated pool 10 so that water of greater depths can be supported within the pool 10 before the side walls 12, 14 deform.” Ex. 1002, 2:26–29; *see also* Ex. 1011 ¶ 119. Patent Owner agrees that the problem addressed by Peterson’s teaching was the desire to have deeper inflatable pools to replace non-inflatable above-ground pools having plastic walls and external, rigid supports. PO Resp. 58–59 (citing Ex. 1002, 1:11–28). We also agree and find that persons of ordinary skill in the art desired to make inflatable pools stronger in order to make such pools deeper. We further find that Peterson’s teachings suggested to one of

ordinary skill in the art that increasing the strength of tensioning structures would allow for even deeper inflatable pools.

Petitioner, relying, *inter alia*, on the testimony of Dr. Sadegh also asserts that “fiber-reinforced material was well-known at the time of the 240 patent and commonly used in the inflatable industry because of its advantageous strength.” Pet. 29 (citing Ex. 1011 ¶¶ 82–89); *see also* Ex. 1011 ¶ 117 (Dr. Sadegh testifying that “[t]his type of reinforced material was commonly used in inflatable products at the time of the invention and mesh-reinforced PVC was known to have increased strength over plain sheets of PVC.”). Petitioner points to Fireman’s material as an example of such and relies on Fireman’s teaching that “mesh layer 42 enhances the tensile strength of the flexible wall 12, increasing the durability of the structure and allowing larger swimming pools to be constructed, compared to flexible walls made without a reinforcing mesh layer.” Pet. 32 (emphasis omitted) (quoting Ex. 1003 ¶ 19); *see* Ex. 1011 ¶ 120.

Petitioner reasons that:

Given that this type of reinforced material was commonly used in inflatable products at the time of the invention, and given that mesh-reinforced PVC was known to have increased strength over plain sheets of PVC, it would have been obvious for one of skill in the art at the time of the invention to use Fireman’s known fiber-reinforced sheets for the wall-strengthening “vertical support webs” of Peterson.

Pet. 31 (citing Ex. 1011 ¶ 117). Petitioner further reasons that Peterson’s teaching of the tensioners’ purpose of providing increased strength to an inflated pool would motivate one to use a material known for its strength and that it would have been obvious for one of ordinary skill in the art to look to Fireman’s multi-ply, mesh reinforced material. Pet. 31–32 (citing Ex. 1011

¶¶ 119–120). Dr. Sadegh persuasively testifies that the purpose of Peterson’s support webs were to provide increased strength so that water of greater depths could be supported and that “one reading Peterson would have been motivated to use Fireman’s multi-ply, mesh-reinforced materials that could provide the necessary strength (i.e., a thermoweldable material stronger than basic PVC).” Ex. 1011 ¶¶ 119–120.

Petitioner also contends that the claimed subject matter would have been obvious as the simple substitution of mesh-reinforced PVC for Peterson’s PVC tensioner material and as the application of a known technique—using mesh to reinforce PVC—yielding predictable results. Pet. 33. “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417 (citation omitted).

Dr. Sadegh persuasively testifies that reinforcing PVC with mesh was a known technique for improving strength. Ex. 1011 ¶ 122. In addition to Fireman, Dr. Sadegh identifies, as an example, Wang ’755 (Ex. 1007). *Id.*; see Pet. 34; cf. PO Resp. 29 (citing Wang ’755 as a “Known Prior Art Tensioning Structure[.]”); Ex. 1025, 55:19–57:1 (Patent Owner’s expert, Mr. Kuchel, explaining why he listed Wang ’755 as a known tensioning structure). Figure 5 of Wang ’755 is shown below.

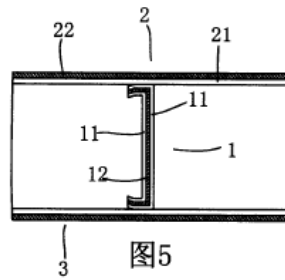


Figure 5 is a sectional view of one of Wang’s embodiments where “horizontal rectangular straps 1 are made of mesh covered by PVC fabric, and their two outer layers are PVC film 11, while the inner layer is made of chemical fiber 12,” with the strap 1 connecting the top and bottom sides of an inflatable mattress. Ex. 1007, 14–15; *see also* Ex. 1011 ¶ 95 (Dr. Sadegh). Wang ’755, as translated, states “[t]he advantages of the said invention are that: the straps [tensioning structures] are made of mesh covered by PVC fabric, and the inner layer is made of PVC, nylon, polyethylene or cotton mesh so the joining between them is strong, pull resistant and durable.” Ex. 1007, 14. The following exchange occurred during the cross-examination of Patent Owner’s expert, Mr. Kuchel:

Q. And if the tensioning structure 1 in Wang [’755] were used in place of Peterson’[s] support webs, it would accomplish the goals of creating a pool that had the proper balance of flexibility and rigidity and was easy to assemble and disassemble, correct?

MR. DODGE: Objection to form.

BY THE WITNESS:

A. Presumably, yes.

Q. That’s why you listed it in this table [on page 57 of the Kuchel Declaration (Ex. 2001)], correct?

A. Correct.

Ex. 1025, 56:16–57:1. This testimony, in conjunction with Mr. Kuchel’s designation of the tensioning structure of Wang ’755 as a known prior art

tensioning structure (Ex. 1025 ¶ 65 (page 57)), is consistent with Dr. Sadegh's testimony (Ex. 1011 ¶¶ 121–124) that the use of mesh-reinforced PVC in Peterson would have yielded predictable results and would have been a simple substitution of one known material for another.

Patent Owner argues that the pool of Peterson was adequate for its intended purpose and that there would have been no reason to modify it. PO Resp. 57–60. We have considered Patent Owner's cited evidence but do not find it persuasive. For example, Patent Owner argues that Dr. Sadegh, on cross-examination, acknowledged that Peterson's pool "would have functioned as intended." PO Resp. 57 (citations omitted). However, the testimony reveals that Patent Owner's counsel defined the "function" as merely serving adequately as an inflatable pool. The following exchange is illustrative:

Q. And Peterson is intended to function as an inflatable pool; right?

MR. JONES: Object to the form of the question.

A. Yes.

Q. And it accomplishes or accomplished that function as designed; right?

MR. JONES: Object to the form of the question.

A. Yes.

Q. Meaning there is no problem with the strength of Peterson.

MR. JONES: Object to the form of the question.

A. I didn't say that there is no problem. It's not optimally designed, of course. You should combine the two together to get a better optimal design.

Q. I understand that's your testimony, but Peterson functions just fine as an inflatable pool --

MR. JONES: Objection.

Q. -- under its current design; right?

MR. JONES: Object to the form of the question.

A. Yes.

Ex. 2038, 174:22–175:23. Thus, contrary to Patent Owner’s implied arguments, Dr. Sadegh did not concede that Peterson’s pool was deemed strong enough such that the person of ordinary skill in the art would understand that there was no possibility for improvement of the tensioning structures or that there would be no obvious modification envisioned by that ordinary artisan.

In support of Patent Owner’s apparent position that Peterson solved all pool strength problems through the use of a single-layer PVC tensioning structure, Mr. Kuchel testifies “Peterson’s tensioning structures 16 already provided the support necessary to construct pools of greater depths.”

Ex. 2001 ¶ 179. While this testimony supports a finding that Peterson taught the use of tensioning structures to allow pools to be deeper than in the past, it does not support a finding, as Patent Owner apparently contends, that persons of ordinary skill in the art had no desire to make deeper or stronger pools. Mr. Kuchel’s testimony regarding the person of skill in the art, who “would have known of numerous different design options” and “would have known of at least 27 alternative types of tensioning structures that could have provided increased strength to an inflatable pool,” *id.* ¶¶ 175, 177, suggests that such a person would have a certain level of inquisitiveness and a desire to improve upon the *status quo*, not a tendency to stop being creative. *See KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). As such, we simply do not find credible Mr. Kuchel’s assertion that “[a] POSA would have had no reason to upgrade these single-layer tensioning structures [of Peterson] because they adequately serve the function of allowing for deeper pools.”

Ex. 2001 ¶ 179. The record does not paint a picture of person of ordinary skill in the art that would be content with mere adequacy.

Patent Owner selectively quotes from *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342 (Fed. Cir. 2012) in support of its argument that, “when the prior art ‘independently operates effectively, a person having ordinary skill in the art . . . merely seeking to create an improved device . . . would have no reason to combine the features of [the prior art] into a single device.’” PO Resp. 57 (quoting *Kinetic Concepts*, 688 F.3d at 1369). *Kinetic Concepts* did not, as Patent Owner implies, create a *per se* rule that one of ordinary skill in any art would not combine the teachings of two references that each disclose embodiments that operate acceptably without modification. See PO Resp. 57–58; First Hr’g Tr. 24:15–25:11; but see First Hr’g Tr. 31:6–11 (characterizing the *Kinetic Concepts* case as pertaining to a primary reference “with no known problem” rather than the interplay of two references that purportedly independently operate effectively). Patent Owner’s quotation, however, omits important language. The court stated, after noting that the record was devoid of any reason to combine the references:

In addition [to expert testimony that there was no reason to combine the two references], both of these references independently accomplish similar functions, namely, draining fluids. Because each device independently operates effectively, a person having ordinary skill in the art, who was merely seeking to create a better device to drain fluids from a wound, would have no reason to combine the features of both devices into a single device.

Kinetic Concepts, 688 F.3d at 1369. Patent Owner does not persuasively analogize the facts of this case to those of *Kinetic Concepts* and specifically

fails to explain adequately how the references before us are so similar in function that one of ordinary skill would have no reason to combine their teachings. In contrast to the facts in *Kinetic Concepts*, there is evidence in this case that there were reasons to modify Peterson with Fireman’s teachings. Further, in the case before us, the teachings of the references are not merely redundant with each other but are additive; the strength-improving qualities of Fireman’s material enhances the tensioning structures of Peterson.

Patent Owner argues that non-obviousness is evidenced by a long gap in time after the issuance of Peterson and Fireman and before the priority date of the ’240 patent. PO Resp. 61–63. We do not find this argument persuasive. “The mere age of the references is not persuasive of the unobviousness of the combination of their teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem.” *In re Wright*, 569 F.2d 1124, 1127 (CCPA 1977) (citations omitted); *see also Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004) (“Absent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is not evidence of nonobviousness.”).

Patent Owner next argues that the “prior art” teaches away from the claimed invention. PO Resp. 63–69. Patent Owner, however, does not indicate how any particular prior art reference discourages Petitioner’s proposed combination. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Rather, Patent Owner appears to address a “shear strength requirements” argument not made by Petitioner. *See* PO Resp. 64 n.7 (asserting that Dr. Sadegh presented an “argument” for the first time during

his deposition). Patent Owner also repeats its argument that Peterson’s single-ply PVC tensioning structures were of adequate strength and that this teaches away from making them stronger. However, it is well-established that even a teaching that something is inferior to another option is insufficient to establish a teaching away. *See In re Fulton*, 391 F.3d 1195, 1201–02. Thus, we are not persuaded that adequacy equates to a discouragement such that any relied-upon prior art reference teaches away from Petitioner’s proposed combination.

Patent Owner next argues that Dr. Sadegh engaged in a hindsight analysis by focusing on the difference between the claimed invention and the prior art—namely, the presence of a reinforcing mesh (porous layer) in a tensioning structure—and argues that Dr. Sadegh should have followed a design analysis involving the evaluation of all the other known alternatives before evaluating the obviousness of utilizing a multi-ply material. PO Resp. 70–82. According to Patent Owner, had Dr. Sadegh followed a “typical design process,” he would have found that there were a multitude of other ways to make an inflatable pool stronger. PO Resp. 75; *see id.* at 75–82.

As an initial matter, we do not fault Dr. Sadegh’s focus on the difference between Peterson and the claimed invention as that is an important issue to be addressed in an obviousness analysis. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966) (The question of obviousness is resolved on the basis of underlying factual determinations including any differences between the claimed subject matter and the prior art.). We are not persuaded that an analysis of the obviousness of every unclaimed option is necessary in this case. Further, Petitioner’s proffered reasoning finds

underpinning in the prior art teachings as well as evidence other than the disclosure of the '240 patent, and is not based on hindsight.

Patent Owner appears to argue that the key teaching of the '240 patent that allegedly is the subject of hindsight pertains to the purported “explain[ation] that the 3-layer material tensioning structure provides added strength to the claimed inflatable product.” PO Resp. 70–71 (citing Ex. 1001, Abstract, 1:33–35, 1:45–46, 6:26–29). Patent Owner implies that it was the “need to increase the strength of internal tensioning structures in inflatable pools” that was the important aspect of the claimed invention. *See id.* at 70 (emphasis omitted) (citations omitted). Patent Owner’s cited portions of the Specification, however, do not focus on the porous layer but rather refer to the need for an inflatable spa having improved strength, and then identify the tensioning structure generally as the element addressing that need by enhancing the strength of the spa. *See* Ex. 1001, 6:26–29 (“The tensioning structures 120 may enhance the strength of the spa 100, allowing the air chamber 110 to withstand relatively high internal pressures, as discussed above, while also providing comfort to a user sitting on or in spa 100.”). As discussed above, at least this much is disclosed in Peterson. The Specification later mentions the porous layer in describing the figures, stating “each tensioning structure 120 *may* include a porous layer or sheet 130 and one or more attachment layers or sheets 132 attached (e.g., laminated) to the porous layer 130.” *See* Ex. 1001, 6:39–42 (emphasis added). Thus, the portions of the Specification relied upon by Patent Owner do not indicate a perceived innovativeness that Patent Owner now ascribes to the role of the porous layer in strengthening a tensioning structure. To explain the purpose of the porous layer, Patent Owner relies on the

knowledge of the person of ordinary skill in the art. PO Resp. 70 (“There also is no dispute that a POSA would have understood this 3-layer material provided increased tensile strength, including increased shear strength, relative to structures that were not constructed of a similar material.”) (citing Ex. 2039 ¶¶ 31, 38; Ex. 2038, 101:16–24, 131:7–132:3). It is not hindsight for Dr. Sadegh also to rely on the same knowledge of the person of ordinary skill in his analysis.

The combination of Peterson and Fireman teaches each limitation of claim 1. Petitioner has introduced persuasive evidence that a person of ordinary skill in the art would have had reasons to combine the teachings of Peterson and Fireman to arrive at the claimed subject matter and that the proposed combination would have yielded predictable results. We have fully considered all of Patent Owner’s arguments and evidence in response, but do not find them persuasive. In sum, upon consideration of all the evidence, we conclude that Petitioner has shown by a preponderance of the evidence that the subject matter of independent claim 1 would have been obvious over Peterson and Fireman.

4. The Alleged Obviousness of Dependent Claims 2–7 and 17

The remaining claims subject to the ground of obviousness over Peterson and Fireman, claims 2–7 and 17, each depends directly from independent claim 1. Petitioner sets forth a specific analysis of the limitations appearing in these dependent claims that cites to the previous analysis of claim 1. Pet. 34–45. Patent Owner does not present separate arguments for these dependent claims, except for claim 4, but instead relies on its arguments regarding independent claim 1. *See* PO Resp. 33–34.

Patent Owner addresses dependent claim 4 in a footnote. *Id.* at 34 n.3. Claim 4 adds to independent claim 1 the recitation “the porous sheet includes a plurality of open spaces that are partially surrounded by the frame members.” Ex. 1001, 19:26–28. Patent Owner, referencing its arguments made for claim 1, contends that Fireman alone does not disclose the specific claimed configuration (for which we note Petitioner relies on the combination, not the single reference) and that there is no reason to modify Peterson to have that configuration. PO Resp. 34 n.3. Patent Owner specifically argues that “Dr. Sadegh testified that, given Fireman’s disclosure of using a molding technique, it is not true that a composite material like Fireman’s would *necessarily* have the claimed ‘plurality of open spaces.’” *Id.* (emphasis added) (citations omitted). Thus, Patent Owner appears to argue that Fireman’s schematic representation in Figure 5A does not inherently disclose partially surrounded open spaces at the outer perimeters of a component cut from a larger composite material.

As discussed above, Petitioner’s position is that Fireman’s Figure 5A is representative of how a tensioner would appear were it cut from a larger sheet of material. *See* Pet. 37 (citing Ex. 1011 ¶¶ 130–132). The cited testimony of Dr. Sadegh is in terms of the overall fabric sheet, not only the cut-out depicted in Figure 5A. *See* Ex. 1011 ¶¶ 130–132. Mr. Kuchel agreed that a homogenous sheet of Fireman’s material cut on a bias would result in open spaces along the edges. Ex. 1025, 58:7–59:16. Thus, Patent Owner’s arguments regarding claim 4 are not persuasive.

We have reviewed Petitioner’s explanations and supporting evidence regarding dependent claims 2–7 and 17, Pet. 34–45, and we determine that Petitioner, for the reasons set forth in its analysis, has shown by a

preponderance of the evidence that dependent claims 2–7 and 17 are unpatentable under 35 U.S.C. § 103 over Peterson and Fireman.

E. The Alleged Obviousness of Claims 18–22 and 30 over Peterson, Fireman, and Guan '797 (Ground 2)

Claims 18–22 and 30 each depend directly or indirectly from claim 1. Petitioner argues that these claims are obvious in view of Peterson, Fireman, and Guan '797. Pet. 45–60.

Guan '797 discloses an inflatable swimming pool. Ex. 1004 ¶ 1. Figure 3 of Guan '797 is reproduced below:

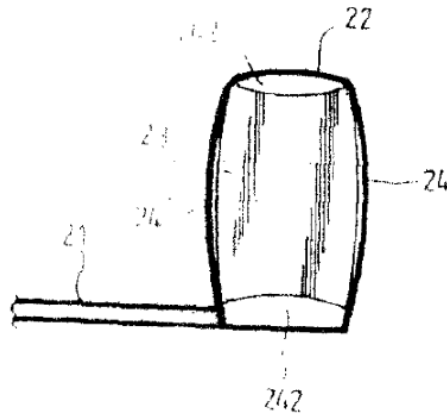


Figure 3 is a sectional view of an isometric view of an inflatable swimming pool depicting supporting spacers 23 and circular wall 24. Ex. 1004 ¶¶ 7–10. “[S]uitable spaces 242 are left respectively between the plurality of supporting spacers 23 and the circular wall top 22 and the bottom of the swimming pool so that a communicated air chamber is formed in the circular wall.” *Id.* ¶ 10.

The Petition, prior to addressing the limitations of the individual claims, includes a section containing generalized reasoning to combine the references. *See* Pet. 45. Specifically, under the heading “Motivation to Combine,” Petitioner argues that, “[a]s both Peterson and Guan 797 are

inflatable spas with tensioning structures, Peterson and Guan 797 are virtually interchangeable in that each reference teaches various design choices that would have been obvious for one of ordinary skill in the art to combine.” Pet. 45 (citing Ex. 1011 ¶¶ 100, 117–124). Petitioner asserts that Guan ’797 is like Peterson in that it does not restrict the material used for the “supporting spacers” and quotes Guan ’797’s statement that “the circular wall 24 of the present utility model is made of transparent material and the supporting spacers 23 in the circular wall 24 are of different colors, the overall appearance is refreshing and it is believed that consumers’ desire to purchase can be aroused by the structural stability and beautify[ing] shape of the present utility model.” Pet. 45–46 (quoting Ex. 1004 ¶ 10; alteration by Petitioner). Petitioner further argues “it would have been obvious to combine the teachings of Peterson, Fireman, and Guan 797 for the reasons stated above.” *Id.* at 46 (citing “Section IX.A.1.e.ii, *supra* at 31–34”; Ex. 1011 ¶ 151). The cited Section IX.A.1.e.ii of the Petition, relied upon as reasoning for combining the teachings of three references, is titled “Motivation to Combine Peterson with Fireman.” *Id.* at 31.

Claim 18 depends from claim 17 and recites, in part, an inner wall, an outer wall, a top wall, and a bottom wall. Ex. 1001, 20:37–43. Petitioner argues that “Peterson and Guan 797 teach the additional limitations of this claim.” Pet. 46. Petitioner contends “[t]o the extent Patent Owner argues that the top wall and/or bottom wall are not taught by Peterson in view of Fireman, those features would have been obvious when combined with the teachings of Guan 797.” Pet. 48. Petitioner concludes the analysis of claim 18 with the statement: “Accordingly, the combination of Peterson, Fireman, and Guan 797 taught all the limitations of claim 18.” *Id.* at 50.

In discussing claims 19 and 21, Petitioner similarly argues that a claimed feature is taught by both Peterson and Guan '797. *See id.* at 51, 57. For claim 30, however, Petitioner asserts that Peterson does not disclose that which Petitioner contends is a claimed feature—a spaced apart, two-layer floor—and relies on Guan '797 for a teaching of that feature and in reasoning that a multi-layer floor would have been an obvious design choice. *See id.* at 59–60; *see* Pet. Supp. Reply 2.

1. Ground 2 Lacks Adequate Reasoning with Rational Underpinning

Ground 2 is identified by Petitioner in the Petition as one of obviousness with the references being “Peterson, Fireman, and Guan 797.” Pet. 24 (table of “Grounds of Rejection”); *see also id.* at 45 (heading for section IX.B, with bolding omitted: “Ground 2: Claims 18-22 and 30 are invalid as obvious over Peterson in view of Fireman and in further view of Guan 797.”).

Patent Owner argues that the analysis in the Petition for this ground is confusing and is fatally flawed for that reason. PO Prelim. Resp. 61. Specifically, Patent Owner contends:

Petitioner’s entire Ground 2 analysis combines two separate grounds into one, interchanging Peterson and Guan 797 for various limitations. For claim 18, for example, Petitioner confusingly swaps Guan 797 and Peterson in further combination with Fireman. *See, e.g.,* Petition, 48, 51.

Id.

In the Institution Decision, we determined that, in light of Petitioner’s articulation of the ground, it was not clear whether Petitioner is proposing a three-reference combination for Ground 2 or multiple two-reference combinations. Inst. Dec. 19–20. Institution of Petitioner’s Ground 2 was

denied, in part, due to our agreement with Patent Owner’s argument that the ground was fatally confusing. Inst. Dec. 19–20 (citing PO Prelim. Resp. 61). In its Rehearing Request, Petitioner argued that the Board overlooked that Guan ’797 is unnecessary to the analysis of Ground 2 for claims 19–22 (but not as to claim 30). Reh’g Req. 2 (heading); *see id.* at 4 (“the Petition indicates that *Guan* is not required”); *see also id.* at 4 (“[G]iven that the Petition indicates that *Guan* is not required, the Petition has shown a reasonable likelihood of prevailing on its assertion that claim 18 is obvious in view of *Peterson* and *Fireman*.”). Petitioner argued that, “[t]o the extent the Petition’s labeling of grounds was confusing,” the Board could institute on grounds not explicitly identified in the headings, and Petitioner requested that we rehear the arguments of the Petition as to claims 19–22 without including Guan ’797 in the ground. *Id.* at 2 n.1, 4.

In contrast, Petitioner maintained that the same Ground 2, as applied to claim 30, required Guan ’797, and Petitioner argued that one of ordinary skill in the art would have been motivated to combine all three references for purposes of its Ground 2 challenge to claim 30. *Id.* at 4–5. Thus, Petitioner impliedly argued that we should have discerned that Ground 2 actually is at least two separate grounds—a two-reference ground (*Peterson* and *Fireman*) for claims 18–22 and either a separate three-reference ground or possibly a different two-reference ground (*Guan* ’797 and *Fireman*) for claim 30. *See id.* at 2, 4–5; *see also* Denial Req. Reh’g 5 (explaining that the Petition contained argument that *Peterson* and *Guan* ’797 are “virtually interchangeable”). We did not find Petitioner’s arguments to be persuasive and we declined to reframe Petitioner’s Ground 2, as it applies to claims 18–22, by omitting *Guan* ’797.

After the Supreme Court issued its decision in *SAS Inst., Inc. v. Iancu*, we modified our institution decision to institute on all of the challenged claims and all of the grounds presented in the Petition, thereby bringing Grounds 2 and 3 back into the case. Paper 30.

In its post-SAS Supplemental Reply, Petitioner embraced the concept of offering a plurality of possible grounds of challenge in a particular stated ground, arguing that it “present[ed] multiple bases for the Board properly to conclude that Claims 18–22 and 30 are unpatentable.” Pet. Supp. Reply 1.⁶ Now, after each of the Patent Owner’s Preliminary Response, the Institution Decision, and the Denial of the Request for Rehearing identified flaws in the Petition, the Petitioner’s Supplemental Reply retrospectively attempts to insert some clarity into the admittedly-multiple grounds in Ground 2. *See id.* at 1–3. A reply can only respond to arguments; it cannot re-engineer the petition from the ground up. *See* 37 C.F.R. § 42.23(b). We do not accept Petitioner’s belated attempt to cure the Petition.

As mentioned, Patent Owner argues that the Petition appears to “interchang[e] Peterson and Guan 797 for various limitations [and] [f]or claim 18, for example, Petitioner confusingly swaps Guan 797 and Peterson in further combination with Fireman.” PO Prelim. Resp. 61 (citing Petition, 48, 51). Petitioner’s Supplemental Reply asserts Petitioner did not argue such a possible basis notwithstanding that it is discernable in the Petition and identified in both Patent Owner’s Preliminary Response and in the

⁶ Petitioner, in the Supplemental Reply, argues that it established unpatentability of claims 18–22 and 30 under Grounds 2 and 3. Pet. Supp. Reply 1. Petitioner, however, fails to acknowledge that claims 18 and 30 are not identified in the Petition as being challenged under Ground 3.

Institution Decision. Pet. Supp. Reply 7; PO Prelim. Resp. 61; Inst. Dec. 19–20 (“Petitioner apparently replaces Peterson as the primary reference in the middle of articulating its position concerning claim 18.”). Petitioner’s most recent articulation characterizes the challenge as one of substituting a particular feature of Guan ’797 for Peterson’s corresponding feature rather than the interchanging references’ structures in their entirety. *Compare* Pet. Supp. Reply. 2 (“substituting Guan 797’s four-sheet wall structure in place of Peterson’s two-sheet wall structure”), *with* Pet. 45 (stating, under the heading “Motivation to Combine,” “Peterson and Guan 797 are virtually interchangeable in that each reference teaches various design choices that would have been obvious for one of ordinary skill in the art to combine.”); *see also* Pet. 58 (referring to using multi-ply mesh material in either Peterson or Guan ’797, furthering the understanding that Petitioner proposes replacing one primary reference in its entirety for another). We are not persuaded by Petitioner’s implied argument that the Petition’s reasoning based on assertions such as two references being “virtually interchangeable” and referring to “features . . . when combined” clearly would have been understood as reasoning involving only one feature substituted for another. *See* Pet. Supp. Reply 7 (citing and quoting Pet. 45–46, 48). Rather than adding clarity to the Petition, injecting what appears to be a simple substitution theory at this late stage of the proceeding adds to the confusing and fluid nature of Petitioner’s challenge.⁷

⁷ “Once the Board identifies new issues presented for the first time in reply, neither [our reviewing] court nor the Board must parse the reply brief to determine which, if any, parts of that brief are responsive and which are

The lack of clarity in the Petition means that it is unclear what exactly the proposed rationale for the combination is. As we stated above, the Petition's rationale for the combination is that, because of their similarities, Peterson and Guan '797 are "virtually interchangeable" and teach "various design choices." Pet. 45. In its Supplemental Reply, Petitioner now attempts to focus on the rationale for its re-crafted Ground 2. But, as we explained above, we are not permitting Petitioner to re-engineer its combination. Thus, Petitioner's motivation to combine must be justified in its original rationale. For a proposed combination that is as confusing, shifting, and indecipherable as this, the rationale, which seems to be nothing more than that the references are analogous art, cannot meet the requirement that a challenging party provide articulated reasoning with rational underpinning. *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Thus, we determine that Petitioner has failed to demonstrate the unpatentability of claims 18–22 and 30 as obvious over Peterson, Fireman, and Guan '797.

2. Petitioner's Substantive Challenge to Claims 18–22 and 30

In addition to being unclear, Petitioner's Ground 2, even as recast in the Supplemental Reply and during the Second Hearing, is substantively flawed.

a) Claim 18

Claim 18 depends from claim 17, which, in turn, depends from independent claim 1. Claim 18 recites, in pertinent part:

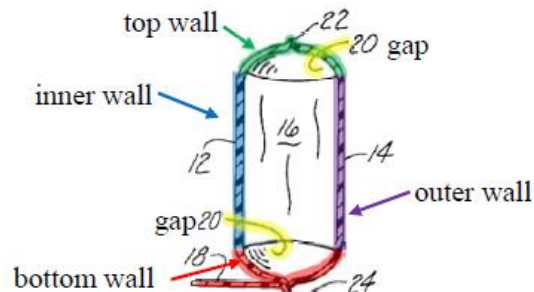
wherein the first wall comprises an inner wall of the inflatable product and the second wall comprises an outer wall of the

improper." *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).

inflatable product, further comprising a top wall and a bottom wall cooperating with the inner and outer walls to define the inflatable air chamber.

Ex. 1001, 20:37–42. Thus, claim 18 calls for a four-wall air chamber, in contrast to the broader independent claim 1, which recites a first wall and a second wall.

Petitioner does not propose, in the Petition, an explicit construction for the four-wall recitation of claim 18. *See* Pet. 20–24. Petitioner argues that Peterson’s two-sheet structure discloses the four walls recited in the claim and provides an annotated version of Peterson’s Figure 4 to explain its position. *Id.* at 47–48.



Id. at 48. The above depiction is a sectional view of Peterson’s inflatable pool, *see* Ex. 1002, 1:59–60, with Petitioner’s annotations in the form of colorizing and labeling to indicate the asserted inner, outer, bottom, and top walls, Pet. 47–48. As can be seen from the annotated figure, Petitioner has designated portions of two sheets 12 and 14 as a top wall and a bottom wall as well as designating other portions of those same sheets as inner and outer walls. Petitioner does not direct our attention to any evidence that supports a conclusion that this application of the prior art reflects an appropriate claim construction of the recitation of four walls. Indeed, Petitioner’s application is contrary to the ’240 patent specification. *See* Ex. 1001, 2:40–44, 60–64

(describing, as two separate embodiments, a two-wall air chamber and a four-wall air chamber); *see also* Ex. 1011 ¶ 153 (Petitioner’s expert opining that Peterson’s inner and outer walls, when thermo-welded together and inflated, form a *single* wall, specifically “an inner, outer, top, and bottom wall”); *id.* ¶ 154 (Petitioner’s expert referring to the cooperation of the support web with the top and bottom *edges* rather than with the top and bottom *walls* as claimed); *compare* independent claim 1 (reciting first and second walls), *with* dependent claim 18 (limiting independent claim 1 by the addition of two more walls that cooperate with the first and second walls). On the record before us, we cannot conclude that a person of ordinary skill in the art would understand the scope of the claimed “top wall” and “bottom wall” to be as broad as applied by Petitioner to Peterson. Accordingly, Petitioner, in its two-reference permutation of Ground 2, fails to demonstrate that the combination of Peterson and Fireman teaches or suggests the four-wall limitation of claim 18, or of claims 19–22, which depend from claim 18.

As to the three-reference permutation of Ground 2, we agree with Patent Owner’s argument (PO Prelim. Resp. 88) that Petitioner’s reasoning to combine Guan ’797 with the combination of Peterson and Fireman is deficient. Petitioner asserts that the three reference combination would have been obvious “for the reasons stated above” and refers to its reasons why one would combine Peterson and Fireman. *See* Pet. 46⁸. This fails to

⁸ Petitioner recasts this as the reasoning offered only for the purportedly clearly articulated two-reference ground rather than the three-ground version. *See* Pet. Supp. Reply 18–19 (citing Pet. 45–46). This is incorrect. The pertinent proposition in the Petition, explicitly associating all three

explain why one would have combined Guan '797 as a third reference with those other two. Further, if Peterson and Guan '797 are “virtually interchangeable,” as Petitioner asserts (Pet. 45), we fail to see why one of ordinary skill in the art would have a reason to add a cumulative reference in the form of Guan '797 to the existing combination of teachings.

In the Supplemental Reply, and after Patent Owner and the Board pointed out the flaws in Petitioner’s reasoning (Inst. Dec. 20), Petitioner contends that the Petition “explained it would have been an obvious design choice to use Guan’s four-sheet wall design in place of Peterson’s two-sheet design” and that Guan '797 provides an explicit motivation in its description of beautifying the appearance of the pool. Pet. Supp. Reply 19–20 (citing, *inter alia*, Pet. 45–46). These are new and belated arguments not found in the Petition. The cited portion of the Petition, the section titled “Motivation to Combine” on pages 45–46: 1) does not refer to a four-sheet wall structure at all, 2) does not identify a four-wall structure as one of the “various design choices,” 3) refers to Guan '797’s supporting spacers and the transparent walls in combination with colorful supporting spacers—not four walls—as the beautifying aspect, and 4) asserts that it would have been obvious to combine three references “for reasons stated above,” which, as mentioned, is a cross-reference to reasoning for combining only two references, Peterson and Fireman. *See* Pet. 45–46; *cf.* Ex. 2001 ¶ 180 (Patent Owner’s expert similarly associating the tensioning structures with helping to “beautify the

references with the reasoning, is: “[I]t would have been obvious to combine the teachings of Peterson, Fireman, and Guan 797 for the reasons stated above.” Pet. 46.

shape” of the wall). We will not consider the new arguments raised so late in the proceeding. Further, Petitioner does not elaborate, even in the Supplemental Reply, on the later-made, conclusory argument that using a four-sheet wall structure in place of Peterson’s two-sheet wall structure would have been obvious design choice. *See* Pet. Supp. Reply 19. The Petition’s statement that “Peterson and Guan 797 are virtually interchangeable in that each reference teaches various design choices that would have been obvious for one of ordinary skill in the art to combine”⁹ is not adequate reasoning. *See Cutsforth, Inc. v. MotivePower, Inc.*, 636 F. App’x 575, 578 (Fed. Cir. 2016) (nonprecedential) (“Merely stating that a particular placement of an element is a design choice does not make it obvious.”). Petitioner has not met its burden of supplying reasoning, with rational underpinning, to support a determination of obviousness of the subject matter of claim 18 over the combination of Peterson, Fireman, and Guan ’797. Petitioner, in addressing claims 19–22, each of which depend directly or indirectly from claim 18, does not articulate adequate reasoning that would cure the underlying defect of the challenge to claim 18. *See* Pet. 50–58.

b) Claim 30

Claim 30 recites, with disputed aspects emphasized:

the bottom wall includes *an annular perimeter rim attached to the internal wall of the pool*, an upper layer attached to the

⁹ The expert testimony cited with the “various design choices” phrase in the Petition pertains to analogous art and to a motivation to combine Peterson and Fireman (but not Guan ’797) in the context of mesh-reinforced tensioning structures, not the four-walls recitation of claim 18. *See* Pet. 45; Ex. 1001 ¶¶ 100, 117–124.

annular perimeter rim, and *a lower layer attached to the annular perimeter rim and the upper layer*, a majority of the upper layer being spaced apart from the lower layer to define a space therebetween.

Ex. 1001, 22:11–17 (emphases added).

Patent Owner argues that the Petition fails to explain how Guan '797 discloses the claimed “annular perimeter rim” feature or the requirement of “a lower layer attached to . . . the upper layer.” PO Prelim. Resp. 62–63.

The Petition does not offer an explicit construction for “annular perimeter rim.” *See* Pet. 20–24. Thus, we and Patent Owner were left to try to infer Petitioner’s proposed construction from its arguments as to how the prior art purportedly discloses the feature. The Petition asserts that, “in Figure 3, Guan 797 disclosed an annular perimeter rim where the bottom wall 21 is attached to inner circular wall 24” and that Guan '797’s “bottom wall is made of two layers where the upper layer is spaced apart from the lower layer.” Pet. 59¹⁰; *see also* Pet. Supp. Reply 13 (“[T]he Petition showed that Guan 797 taught a two-layer bottom wall, including top and bottom layers attached to an annular perimeter rim.”). Petitioner provides the following annotated version of Guan '797’s Figure 3:

¹⁰ Petitioner also asserts that, “[a]s shown in Figure 4, Peterson disclosed an annular perimeter rim at seam 24, where floor 18 attaches to the bottom wall.” Pet. 59–60; *see* Ex. 1011 ¶ 182 (Dr. Sadegh stating the same, without elaboration).

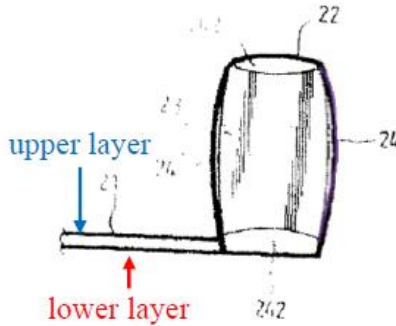


Figure 3 is a sectional view of Guan's inflatable swimming pool with Petitioner's annotations indicating the upper layer and lower layer of air-bag cushion 21. Pet. 60; Ex. 1004 ¶¶ 7–10.

We are unable to discern from the arguments in the Petition the structure of Guan '797 that Petitioner contends is “an annular perimeter rim attached to the internal wall of the pool.”

In the Supplemental Reply, Petitioner belatedly proposes a construction, asserting that “the annular perimeter rim simply provides a connection between the upper and lower layers around the entirety of the bottom wall while the majority of the upper layer remains ‘spaced apart from the lower layer to define a space therebetween.’” Pet. Supp. Reply 14–15 (citing Ex. 1001, 22:15–17). Petitioner's construction fails to address the requirement that the rim must be a structure “attached to the internal wall of the pool.” Ex. 1001, 22:12–13.

At the second hearing, Petitioner clarified that it is not arguing that, in Guan '797, the “rim” is a portion of the inner wall, but rather that the rim is an edge of the floor where each of two sheets forming the floor attach to the inner wall of the pool. Second Hr'g Tr. 8:5–9:26. Although Petitioner's position still is somewhat unclear, we understand that Petitioner may contend that the claimed “rim” is the combination of two lines of contact

where each of two floor layers attaches to the inner wall of the pool, and that a rim is inherent in the disclosure of a closed air pocket forming the floor of the pool. *See* Second Hr’g Tr. 9:1–8 (“[Guan ’797’s] floor 21 does attach to the inner wall and it also creates an airbag cushion so there must be more than an upper layer and lower layer, it must be fully surrounded in order to create the airbag cushion.”).

Petitioner’s applied and implied construction appears to read out a limitation of the claim. At the Second Hearing, Petitioner took the position that the structure of a rim attached to a wall is insignificant.

JUDGE BARRETT: What I’m envisioning is the lower layer [of Guan ’797] is fused to the inner wall and upper layer is fused to the inner wall and that creates an airtight enclosure, but then I would question where’s the perimeter rim attached to that inner wall?

MR. JONES: Well, and I think Guan’s disclosure could be broad enough to understand that. If that’s the case it’s a very minor variation that you’re discussing here that has really no significance to the features or the utility of this device.

Second Hr’g Tr. 9:9–16.

We determine that Petitioner has failed to explain adequately how the relied-upon prior art discloses “an annular perimeter rim attached to the internal wall of the pool.”

Additionally, claim 30 recites structure involving three separate attachments. Specifically, claim 30 recites: 1) “an upper layer attached to the annular perimeter rim,” 2) “a lower layer attached to the annular perimeter rim,” and 3) the lower layer also is “attached to . . . the upper layer.” Ex. 1001, 22:13–15. As with the “rim” limitation, Petitioner does not offer in the Petition an explicit construction of these limitations. Patent Owner argued that the Petition failed to describe how Guan ’797’s lower

layer was attached to the upper layer, asserting that Guan '797's Figure 3 shows the two floor layers not attached to each other. PO Prelim. Resp. 62; *see* Pet. 59 (“the upper layer is spaced apart from the lower layer”).

Petitioner then belatedly addressed the limitation and proposed a claim construction in the Supplemental Reply. *See* Pet. Supp. Reply 15–16. Petitioner argues, with little elaboration, that the claim does not require direct attachment. *Id.* Petitioner apparently contends that the two floor layers, which Petitioner characterized as spaced-apart (Pet. 59), are indirectly attached via another pool component. If so, that renders this and the other attachment limitations surplusage because every component of the claimed inflatable pool could be said to be indirectly attached to every other component, and therefore there would be no need to specify three points of attachment. Petitioner also argues that, if a direct attachment is required, Guan '797 discloses a direct attachment because the walls “must be joined together to provide an airtight seal.” Pet. Supp. Reply 16. We are unable to see how Guan '797's two spaced-apart floor layers alone create an airtight seal and therefore fail to understand Petitioner's assertion of a direct attachment between those layers. We determine that Petitioner has failed to explain adequately how Guan '797 discloses “a lower layer attached to the annular perimeter rim and the upper layer” as recited in claim 30.

Petitioner has not demonstrated that the combination of Peterson, Fireman, and Guan '797 renders obvious the subject matter of claim 30.

*F. The Alleged Obviousness of Claims 19–22
over Peterson, Fireman, Guan '797, and Wang '615 (Ground 3)*

Claims 19–22 each depends directly or indirectly from dependent claim 18. Petitioner articulates a combination where Wang '615 is added to

the above-discussed three-reference combination including Guan '797. Pet. 60–71. Petitioner relies on Wang for a particular shape of the notches of the tensioning structure. *Id.* at 61. Petitioner's articulation of this ground does not remedy the deficiencies discussed above in the context of the three-reference ground directed to claim 18.

Additionally, we agree with Patent Owner (PO Prelim. Resp. 89) that Petitioner's reasoning is inadequate. Petitioner asserts that it would have been obvious to combine Wang '615 with Peterson and Fireman (and, although not mentioned, presumably with Guan '797) because "Wang 615 disclosed that same basic spa structure as Peterson and places no particular limitations on the type of material to use for its tensioning structures." Pet. 61. Petitioner's contention is little more than an assertion that the claimed structures are known in the art, not an adequate explanation as to why one of ordinary skill in the art would have reason to combine the references to arrive at the subject matter of the challenged claims.

For claim 19, Petitioner argues that any shaped notch that Patent Owner might contend is covered by the claim would have been an obvious design choice because any shaped notch would perform the same function as the claimed structure. Pet. 64–65; *see* Pet. Supp. Reply 21. This contention, where any possible hypothetical structure would be obvious, effectively reads out the limitation of the claim or improperly rewrites it as a functional limitation.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that claims 1–7 and 17 of the '240 patent are unpatentable under 35 U.S.C. § 103

as obvious over Peterson and Fireman. Petitioner has not demonstrated by a preponderance of the evidence that claims 18–22 and 30 are unpatentable under 35 U.S.C. § 103 as obvious over Peterson, Fireman, and Guan '797, or that claims 18–22 are unpatentable under 35 U.S.C. § 103 as obvious over Peterson, Fireman, Guan '797, and Wang '615.

IV. ORDER

For the foregoing reasons, it is
ORDERED that claims 1–7 and 17 of the '240 patent are unpatentable.

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.

PGR2017-00003
Patent 9,254,240 B2

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