

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEX RECREATION CORPORATION and BESTWAY (USA) INC.,
Petitioner,

v.

TEAM WORLDWIDE CORPORATION,
Patent Owner.

IPR2018-00859
Patent 9,211,018 B2

Before GEORGE R. HOSKINS, JAMES J. MAYBERRY, and
ERIC C. JESCHKE, *Administrative Patent Judges*.

JESCHKE, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision on Remand
Determining All Challenged Claims Unpatentable
35 U.S.C. §§ 144, 318(a)

I. BACKGROUND

This Remand Decision is a final written decision on remand from the United States Court of Appeals for the Federal Circuit, which affirmed in part, vacated in part, and remanded the original Final Written Decision in this proceeding. *See Intex Recreation Corp. v. Team Worldwide Corp.*, 860 F. App'x 717 (Fed. Cir. 2021) (nonprecedential); Paper 128 (“Final Dec.”).

We have jurisdiction under 35 U.S.C. § 6, and we issue this Remand 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 claims 1, 5, 7, and 11–14 (the “Challenged Claims”) of U.S. Patent No. 9,211,018 B2 (Ex. 1001, the “’018 patent”).

A. Procedural History

Intex Recreation Corp., Bestway (USA) Inc., Walmart Inc., Wal-Mart Stores Texas, LLC, Wal-Mart.com USA LLC, and Sam’s West, Inc. d/b/a Sam’s Club (collectively, “Petitioner”), filed a Petition requesting *inter partes* review of the Challenged Claims of the ’018 patent. Paper 4 (“Pet.”). Patent Owner, Team Worldwide Corp., filed a Preliminary Response to the Petition. Paper 9. We instituted trial on all claims and grounds. Paper 15.

After we instituted trial, Patent Owner filed a Patent Owner Response. Paper 46 (“PO Resp.”).¹ Petitioner filed a Reply to the Patent Owner Response. Paper 72 (“Reply”).² Patent Owner filed a Sur-reply to the Reply. Paper 81 (“Sur-reply”).³

¹ A public version of the Patent Owner Response was filed as Paper 48.

² A public version of the Reply was filed as Paper 73.

³ A public version of the Sur-reply was filed as Paper 82.

On June 18, 2019, we granted a joint motion to terminate the proceeding as to the Walmart entities (Walmart Inc., Wal-Mart Stores Texas, LLC, Wal-Mart.com USA LLC, and Sam's West, Inc. d/b/a Sam's Club). Paper 95. Accordingly, Intex Recreation Corp. and Bestway (USA) Inc. are the sole remaining Petitioner entities.

A consolidated oral hearing was held on July 29, 2019, for this proceeding as well as IPR2018-00873 and IPR2018-00874, and the record includes a transcript of the hearing. Paper 117 ("Tr.").⁴

Petitioner relies on the declaration testimony of Dr. Joseph Beaman (Exs. 1002, 1625), Mr. W. Todd Schoettelkotte (Ex. 1649), and Mr. Ryan Slate (Ex. 1650). Patent Owner relies on the declaration testimony of Dr. Glen Stevick (Ex. 2029) and Dr. Stephen Becker (Ex. 2638).

We issued a Final Written Decision, concluding that Petitioner had failed to demonstrate, by a preponderance of the evidence, that any of the Challenged Claims had been shown unpatentable. *See* Final Dec. Specifically, we determined that Petitioner had:

- (1) not shown that claims 1, 7, and 11–14 are unpatentable under 35 U.S.C. § 102(e) as anticipated by Chaffee⁵;
- (2) not shown that claim 5 is unpatentable under 35 U.S.C. § 103 over Chaffee and Walker⁶;

⁴ A public version of the transcript was filed as Paper 116.

⁵ Chaffee, US 7,039,972 B2, issued May 9, 2006 (Ex. 1006).

⁶ Walker, US 4,890,344, issued Jan. 2, 1990 (Ex. 1009).

(3) not shown that claims 1, 7, and 12–14 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Chan⁷;

(4) not shown that claims 5 and 11 are unpatentable under 35 U.S.C. § 103 over Chan and Walker;

(5) not shown that claims 1, 7, and 11–14 are unpatentable under 35 U.S.C. § 103 over Parienti⁸ and Goldsmith⁹;

(6) not shown that claim 5 is unpatentable under 35 U.S.C. § 103 over Parienti, Goldsmith, and Walker; and

(7) not shown that claims 1, 7, and 11–14 are unpatentable under 35 U.S.C. § 103 over Chaffee.

See Final Dec. 24–55.

On appeal, the Federal Circuit affirmed as to the two grounds involving Chan (*see Intex*, 860 F. App'x at 722) and vacated and remanded the prior determinations as to the two grounds involving Parienti (*see id.* at 722–24). The parties did not raise any issues on appeal as to the three grounds involving Chaffee. As such, our findings and conclusions as to the Chan and Chaffee grounds remain undisturbed. *See* Final Dec. 24–30, 53–54, 55, 62. We address below the two grounds involving Parienti.

B. The '018 Patent

The '018 patent, titled “Inflatable Airbed Provided with Electric Pump Having Pump Body Recessed into the Inflatable Airbed,” issued December 15, 2015, from an application filed January 10, 2005. Ex. 1001, codes (54),

⁷ Chan, US 5,564,963, issued Oct. 15, 1996 (Ex. 1008).

⁸ Parienti, US 6,018,960, issued Feb. 1, 2000 (Ex. 1005).

⁹ Goldsmith, US 2,493,067, issued Jan. 3, 1950 (Ex. 1007).

(45), (22). The '018 patent “relates in general to an inflatable product provided with an electric pump.” *Id.* at 1:20–21. Figure 14 is reproduced below:

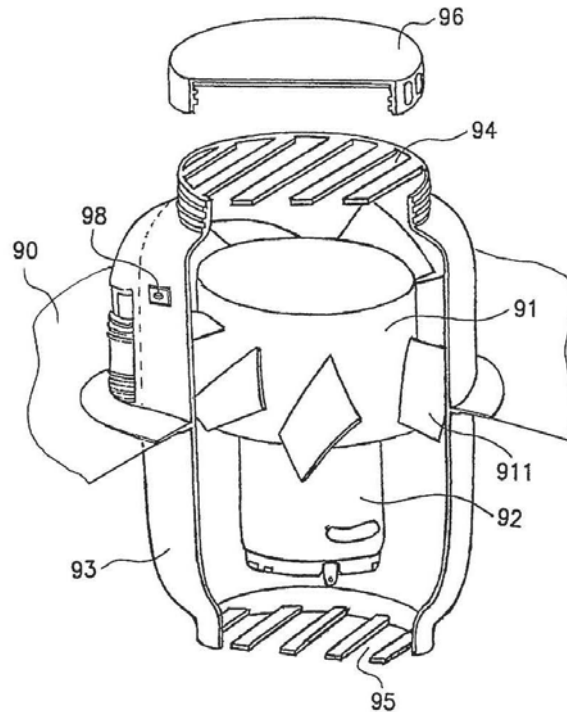


FIG. 14

Figure 14 depicts “a perspective diagram of an electric pump of an airbed.” *Id.* at 2:53–54. The electric pump of the embodiment of Figure 14 includes housing 93 containing motor 92 and fan 91. *Id.* at 6:55–57. Housing 93 is mounted on airbed 90, which is only partially shown in Figure 14. *Id.* at 6:61–62. That is, the housing of the air pump is connected directly to, or built into, airbed 90. *See* Pet. 6 (“[T]he key aspect of the claimed invention in the '018 [p]atent is ‘provid[ing] a convenient airbed with built in electric components where the pump body is built into the exterior wall of the airbed.’”).

First hole 94 communicates with the atmosphere outside of airbed 90 and second hole 95 communicates with the inside of airbed 90. Ex. 1001, 6:62–64. To inflate airbed 90, fan 91 and motor 92 pump outside air into the pump through first hole 94 and then into airbed 90 through second hole 95. *Id.* at 6:64–65. Once filled, cover 96 is screwed to housing 93 to prevent air from leaking out of airbed 90. *Id.* at 6:66–67. To deflate the airbed, cover 96 is removed and fan 91 and motor 92 are operated in reverse to pump air out of the airbed. *Id.* at 6:67–7:2.

C. Illustrative Claims

Of the Challenged Claims, claims 1 and 14 are independent claims. Ex. 1001, 7:28–8:37. Claim 1 is reproduced below.

1. An inflatable product comprising:
 - an inflatable body comprising an exterior wall; and
 - an electric pump for pumping the inflatable body, the electric pump comprising a pump body and an air outlet,
 - wherein the pump body is built into the exterior wall and wholly or partially recessed into the inflatable body, leaving at least a portion of the pump body exposed by the exterior wall, and
 - wherein the pump body is permanently held by the inflatable body.

Ex. 1001, 7:28–36. Claim 14 is broader than claim 1, as claim 14 does not require the pump body to be permanently held by the inflatable body (as recited in the final clause of claim 1). *See id.* at 8:30–37.

D. Overview of the Prior Art at Issue

The Petition relies on three prior art references in the asserted grounds of unpatentability at issue in this Remand Decision—Parienti, Goldsmith, and Walker. We discuss each, in turn, below.

1. Parienti

Parienti, titled “Automatically Inflatable, Deflatable and Foldable Solar-Powered Cooler Mattress with a Sunshade,” issued February 1, 2000. Ex. 1005, codes (54), (45). Parienti discloses that the “invention is made up of an inflatable mattress and an associated device for automatic inflating and deflating of the mattress” and that “[t]h[e associated] device is made interdependent with the mattress by means of gluing or any other means.” *Id.* at 1:22–25.

Figure 1 of Parienti is reproduced below:

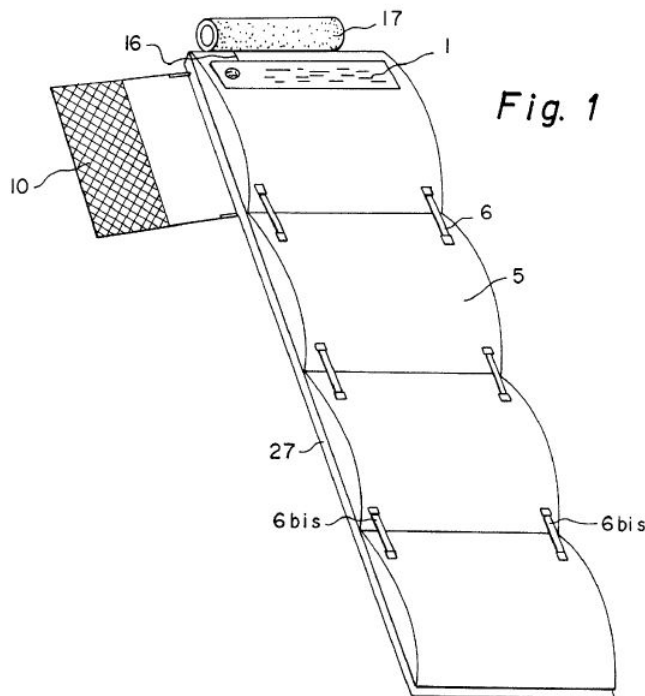


Figure 1 depicts “a plan view of the solar powered mattress of the . . . invention.” Ex. 1005, 1:36–37. The embodiment in Figure 1 shows, among other aspects, mattress 5, photovoltaic cells 1, and pipe 16, which may direct airflow to porous cylinder 17 for cooling a user. *See, e.g., id.* at 3:20–29.

Figures 4 and 5 are reproduced below:

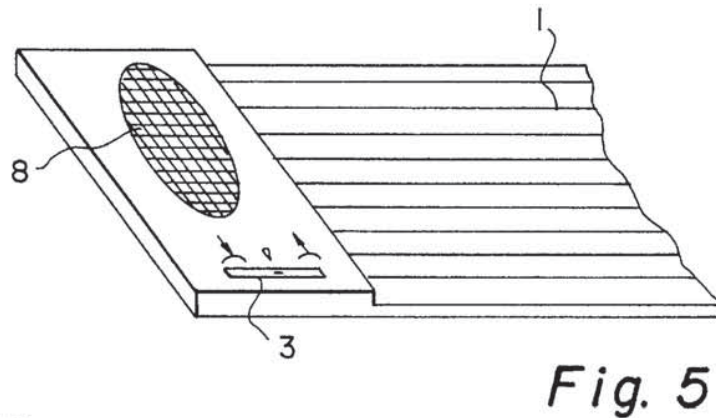
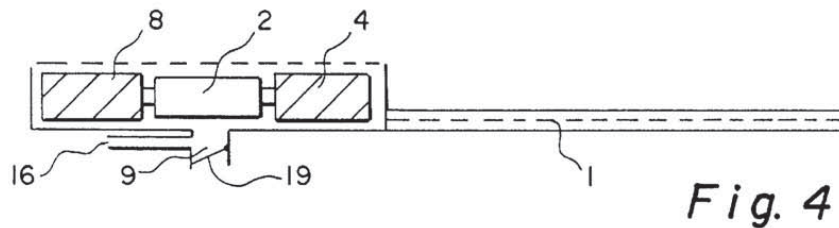


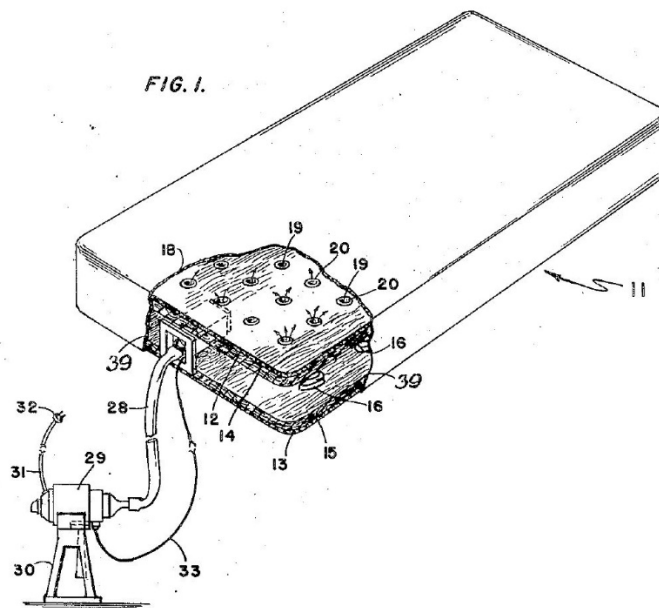
Figure 5 depicts “a plan view of a device for inflation/deflation of the solar powered mattress,” and Figure 4 depicts a cross-sectional view of the device of Figure 5. Ex. 1005, 1:44–46. Parienti discloses:

Switching from inflating to deflating function is performed by reversing the polarity of the motor (2) that drives the turbine (4). Inflating is performed through the rotation of the turbine in one direction, what causes the suction of ambient air through the protective grid (8) and the introduction of the air into the mattress through the pipe (9). Likewise, deflating is performed through the rotation of the turbine in the reverse direction, what causes the suction of the air from the mattress and its exhausting to the exterior (FIG. 4).

Id. at 2:64–3:6.¹⁰ As seen in Parienti’s Figure 4, above, pipe 9 is positioned with respect to mattress 5 for inflating and deflating the mattress.

2. Goldsmith

Goldsmith, titled “Mattress,” issued January 3, 1950. Ex. 1007, 1. Goldsmith “relates to improvements in mattresses and has particular reference to the type known as ‘inner spring mattresses.’” *Id.* at 1:1–3. Goldsmith discloses providing an inner spring mattress with means “for blowing air of varying temperatures into the inner compartment of the mattress, and permitting such air to circulate through the said inner compartment, and to heat or cool the mattress to a temperature above or below the normal outside or surrounding temperature.” *Id.* at 1:4–12. Figure 1 of Goldsmith is reproduced below:



¹⁰ The lead line for protective grid 8 in Parienti’s Figure 4 mistakenly extends to a portion of turbine 4 rather than to protective grid 8, represented as the horizontal dashed line *above* turbine 4 and motor 2. Compare Ex. 1005, Fig. 4, with *id.*, Fig. 5.

Figure 1 depicts “a perspective view, partly broken away, of a mattress and shows an air blowing mechanism attached thereto.” Ex. 1007, 2:19–21. As shown in Figure 1, Goldsmith discloses one embodiment in which blower unit 29 provides air to one end of inner spring mattress 11 via tube 28. *See id.* at 2:51–3:1. Goldsmith discloses that wall 39 “encircles the mattress and acts to prevent the air within the aforesaid air compartment 17 from escaping.” *Id.* at 3:25–28.

Figure 6 of Goldsmith is reproduced below:

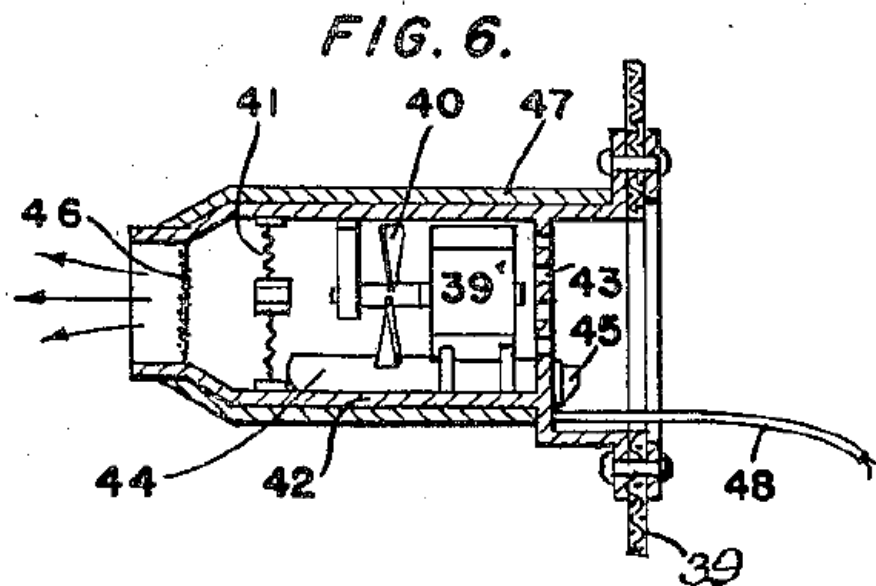
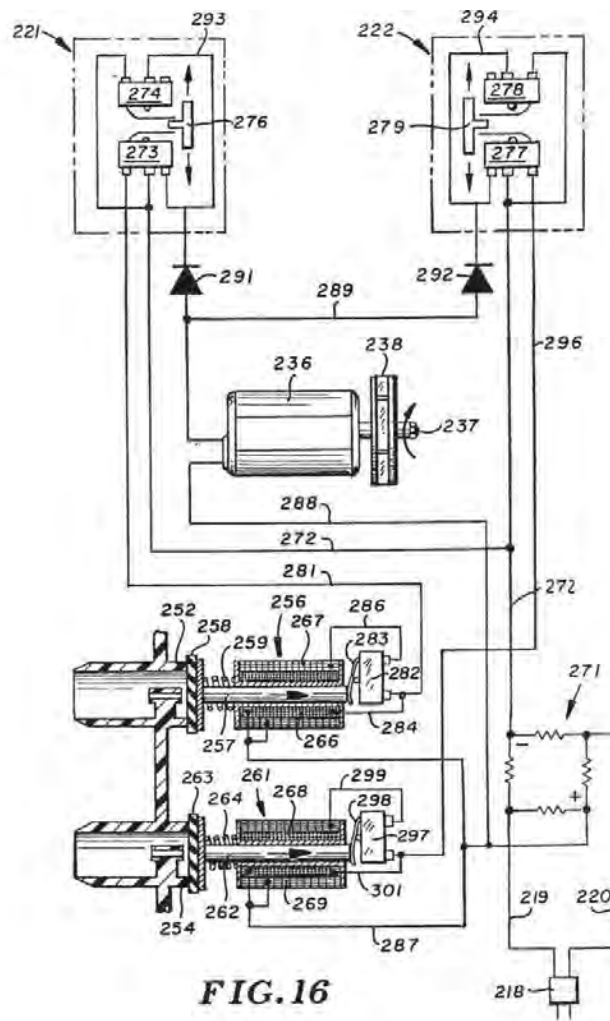


Figure 6 depicts a “sectional view showing a modified form of air distributing chamber which forms a part of th[e] invention.” Ex. 1007, 2:30–32. The alternative embodiment shown in Figure 6 includes, among other aspects, motor 39' and fan 40 inside distribution casing 42, which is “mounted or attached to the mattress” previously described. *Id.* at 4:1–5. Goldsmith states: “With this form set [shown in Figure 6] within the mattress, no outside [blower] unit is necessary.” *Id.* at 4:11–12.

3. *Walker*

Walker, titled “Air Control System for Air Bed,” issued January 2, 1990. Ex. 1009, codes (54), (45). Walker is generally directed to “air pumps and hand controls for supplying air under pressure to air mattresses



Id. at Figs. 8, 16. Figure 8 depicts a “perspective view of an air bed . . . equipped with” an air control apparatus of Walker’s invention and Figure 16 depicts a “diagrammatic view of the electrical control circuit of the air control apparatus of F[igure] 8.” *Id.* at 3:60–62, 4:7–8. Walker discloses that “electrical receptacle plug 218 is joined to two electrical lines 219 and 220 leading to a resistance bridge rectifier 271. Rectifier 271 converts AC power to DC power.” *Id.* at 9:59–62; *see also id.* at 10:21–11:13 (describing the operation of electric motor 236 and solenoids 256, 261).

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

The level of 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). In the Final Written Decision, we found that a person of ordinary skill in the art would have had “a bachelor’s degree in mechanical engineering or an equivalent field” or, alternatively, “a designer with at least two years of experience in mechanical and electrical design aspects of inflatable products having electric air pumps.” Final Dec. 17. The parties did not challenge this determination at the Federal Circuit.

B. *Claim Construction*

In the Final Written Decision, we applied the broadest reasonable interpretation standard (applicable based on the filing date of the Petition) to construe three claim terms. Final Dec. 24–55; *see Intex*, 860 F. App’x at 722 n.2. Specifically, we construed (1) “built into” to mean “integrated into and not detachable from,” (2) “pump body” to mean “the main part of the electric pump and a separate and distinct element from the air outlet,” and (3) “inflatable body” to mean “a substantially airtight structure that expands when filled with air or other gases.” Final Dec. 20–24. The parties did not challenge the constructions of “built into” or “pump body,” and the Federal Circuit agreed with the construction of “inflatable body.” *See Intex*, 860 F. App’x at 722. We apply these constructions below.

C. *Asserted Obviousness of Claims 1, 7, and 11–14 Based on Parienti and Goldsmith*

At issue on remand are two grounds of unpatentability based on obviousness. *See* Pet. 14–15.

Section 103(a) [of 35 U.S.C.] forbids issuance of a patent when “the differences between the subject matter sought to be patented 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) (quoting 35 U.S.C. § 103(a)).¹¹

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 ordinary skill in the art;¹² and (4) when available, objective indicia of nonobviousness, such as commercial success, long felt but unsolved needs, and failure of others.¹³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Petitioner contends that the combination of Parienti and Goldsmith renders obvious claims 1, 7 and 11–14. Pet. 15. Patent Owner argues (1) that Goldsmith is nonanalogous art, such that it is not prior art to the ’018 patent, (2) that the combination of Parienti and Goldsmith does not disclose each and every limitation of claims 1 and 14, and (3) that a person having ordinary skill in the art would not have had reason to combine Parienti and

¹¹ 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 ’018 patent have an effective filing date before March 16, 2013, we apply the pre-AIA version of this statute.

¹² We address the level of ordinary skill in the art in Section II.A., *supra*.

¹³ The record includes extensive evidence directed to objective indicia. *See* PO Resp. 75–84; Reply 26–32; Sur-reply 23–28.

Goldsmith. PO Resp. 23–47. Petitioner replies to these disputes (Reply 5–18) and Patent Owner responds to the reply arguments (Sur-reply 1–16). We address these three disputes, below.

1. Independent Claim 1

Petitioner contends that the combination of Parienti and Goldsmith satisfies each of the limitations of claim 1. Pet. 68–87. 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 modify Parienti based on Goldsmith. Pet. 76–78. We address in turn below the status of Goldsmith as analogous art, the subject matter of each element in claim 1, Petitioner’s identified reasons to modify Parienti based on Goldsmith, and then objective evidence of nonobviousness.

a) Goldsmith as Analogous Art

“To be considered within the prior art for purposes of the obviousness analysis, a reference must be analogous.” *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015). Patent Owner contends that Goldsmith is not prior art because Goldsmith is nonanalogous art. PO Resp. 44–47. Petitioner responds to this argument (Reply 9–11) and Patent Owner replies (Sur-reply 9–10).

“Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004), *quoted in Donner Tech., LLC v. Pro*

Stage Gear, LLC, 979 F.3d 1353, 1359 (Fed. Cir. 2020) (applying the tests from *In re Bigio* in an appeal from an *inter partes* review). A prior art reference need only satisfy one of the tests to be analogous art. We focus on the “reasonably pertinent” test.

Whether a reference is reasonably pertinent “rests on the extent to which the reference of interest and the claimed invention relate to a similar problem or purpose.” *Donner*, 979 F.3d at 1359. A reference need not be reasonably pertinent to *every* problem in a field to be analogous prior art, but rather, it need only be “reasonably pertinent to one or more of the particular problems to which the claimed inventions relate.” *Id.* at 1361.

Patent Owner argues that “one problem faced by the inventor of the ’018 Patent was to provide a modified airbed having its own built in and recessed electric air pump to inflate the airbed,” but that “[t]he problem faced by the inventor of the Goldsmith patent (which was filed in 1945), on the other hand, was to provide an improved inner spring mattress; namely, one that could be heated or cooled by way of an attached air blower.” PO Resp. 45–46 (citing Ex. 1001, 1:35–52; Ex. 1007, 1:1–12, 1:26–30). According to Patent Owner, “[d]etermining how to heat/cool a spring mattress is much different than trying to determine how to build in a pump body to inflate an air mattress.” *Id.* at 46 (citing Ex. 2029 ¶ 98 for the entire discussion).

Petitioner replies that “Goldsmith is reasonably pertinent to an undisputed problem identified in the ’018 Patent: to provide a built-in air pump to thereby eliminate the need for an external pump.” Reply 10 (citing PO Resp. 45; Ex. 1625 ¶ 63). According to Petitioner, “Goldsmith addresses this exact problem, except for a different type of mattress.” *Id.* (citing

Ex. 1007, 4:11–12 (“With this form set within the mattress, no outside [blower] unit is necessary.”), Fig. 6).

Based on the passage in the ’018 patent cited by both Dr. Stevick and Dr. Beaman in their discussions on this issue, we determine that one problem with which the inventor of the ’018 patent was involved was providing a built-in air pump to thereby eliminate the need for an external pump. Ex. 1001, 1:35–52, *cited at* Ex. 2029 ¶ 98 & Ex. 1625 ¶ 63 (“Dr. Stevick and I appear to agree that one problem addressed by the ’018 Patent is to provide a built-in and recessed air pump to thereby eliminate the need for an external pump.” (citing Ex. 2029 ¶ 98)). Patent Owner’s own description of the problem faced by ’018 patent’s inventors as being “to provide a modified airbed having *its own built in* and recessed air pump” (PO Resp. 45 (emphasis added)) acknowledges this.

Petitioner persuasively argues that the relied-upon embodiment of Goldsmith (Figure 6) is at least reasonably pertinent to that same problem. Indeed, the passage from Goldsmith cited by Petitioner regarding the embodiment in Figure 6 highlights how, in the relied-upon embodiment, “no outside [blower] unit is necessary.” Ex. 1007, 4:11–12. In the Sur-reply, Patent Owner does not address the discussion of the relied-upon embodiment of Goldsmith cited by Petitioner (or the problem identified by Petitioner as at issue with respect to that embodiment), and instead identifies a *different* problem also addressed by Goldsmith. *See* Sur-reply 9 (stating

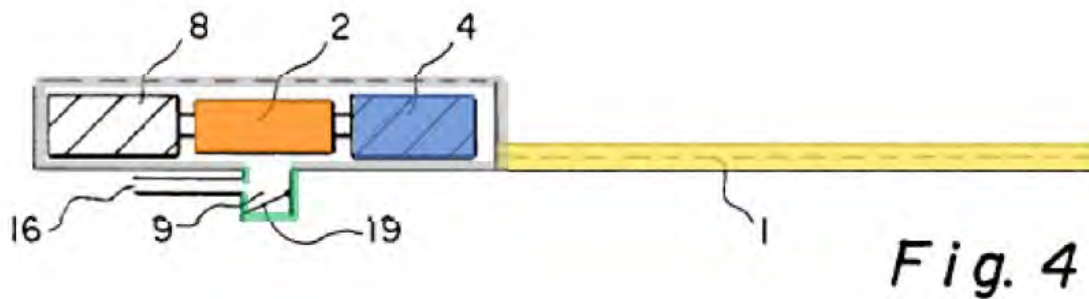
that “[t]he entire purpose of Goldsmith is to blow heat into the interior of the mattress”). For these reasons, we find Goldsmith to be analogous art.¹⁴

b) The “Inflatable Body” Limitation

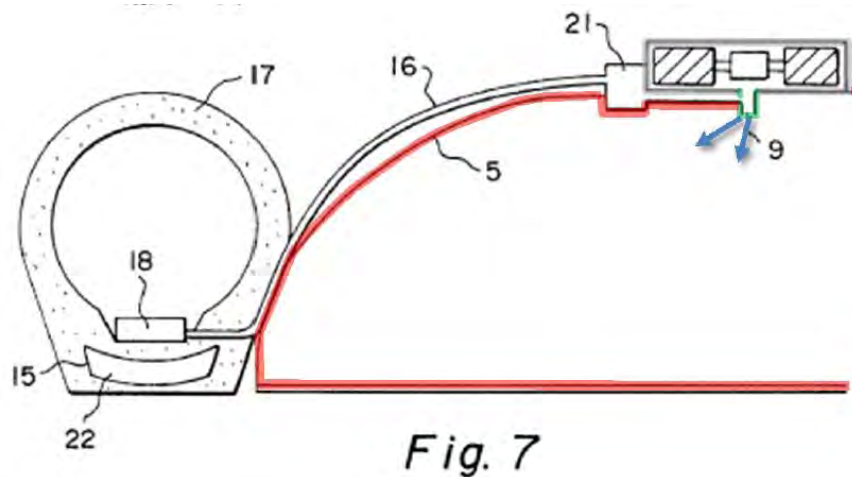
Claim 1 recites “an inflatable body comprising an exterior wall.”¹⁵ Ex. 1001, 7:29 (“the ‘inflatable body’ limitation”). Petitioner states that Parienti “is an inflatable mattress” in that it “is designed to retain air and the walls will expand when inflated.” Pet. 69 (citing Ex. 1005, 1:22–24, 3:7–9, Figs. 1, 5; Ex. 1002 ¶ 216). According to Petitioner, one of ordinary skill in the art also “would have understood this mattress to be a substantially airtight structure designed to retain air” in that Parienti discloses that valve 19 “prevents the air from getting out” after the mattress 5 is inflated. Pet. 69–70 (quoting Ex. 1005, 3:7–9) (citing Ex. 1002 ¶ 217). To support this point, Petitioner provides this annotated version of Figure 7 of Parienti:

¹⁴ We note that, even after we assumed Goldsmith was analogous art for purposes of the original Final Written Decision (*see* Final Dec. 31–32), Patent Owner did not challenge that assumption at the Federal Circuit.

¹⁵ The preamble of claim 1 recites: “An inflatable product comprising:”. Petitioner takes the position that the “preamble [in claim 1] is not a limitation.” Pet. 68. We agree; here, the body of the claim “sets out the complete invention” such that “the language of the preamble is superfluous.” *Schumer v. Lab. Comput. Sys., Inc.*, 308 F.3d 1304, 1310 (Fed. Cir. 2002).



Pet. 72. Figure 4 is a cross-sectional view of a device “for inflation/deflation of the solar powered mattress.” Ex. 1005, 1:44–46. In the annotated version of Figure 4 above, Petitioner added (1) blue highlighting to turbine 4, (2) orange highlighting to motor 2, (3) green highlighting to pipe 9, (4) grey highlighting to the outer wall of the pump, and (5) yellow highlighting to photovoltaic cells 1. Pet. 72. Petitioner states that “Parienti disclose[s] a motorized pump, including ‘a photovoltaic cell array (1) [yellow], a motor (2) [orange] powered by said cell array, a [three] position switch (3) (FIG. 5)” and that “[s]witching from inflating to deflating function is performed by reversing the polarity of the motor (2) that drives the turbine (4) [blue].” Pet. 71 (quoting Ex. 1005, 2:56–59, 2:64–66). According to Petitioner, “[t]he housing for the electric pump includes a pump body (gray) surrounding the main part of the pump (including the motor (2) turbine (4)) and an air outlet (green) pipe (9).” Pet. 72 (citing Ex. 1002 ¶ 221). Petitioner then provides this annotated version of Figure 7 of Parienti:



Pet. 73. Figure 7 is a cross-sectional view of one end of a solar-powered mattress. *See* Ex. 1005, 1:50–52. In this annotated version, Petitioner added (1) red highlighting on the outer edge of mattress 5, (2) green highlighting to pipe 9, and (3) blue lines showing airflow due to the turbine’s operation. Pet. 73 (citing Ex. 1002 ¶¶ 222–223). Referring to this annotated Figure, Petitioner states, “once inside Parienti’s pump body (gray), Parienti’s motor 2 and turbine 4 introduce ‘the air [blue arrows] into the mattress through the pipe (9) [green].” Pet. 72–73 (quoting Ex. 1005, 3:1–2).

Patent Owner argues that Petitioner’s position fails because “Parienti lacks description of ‘the pump body’” identified in grey in the annotated version of Figure 4 of Parienti above. PO Resp. 39–40. Specifically, Patent Owner contends that the “gray outline is arbitrarily drawn in FIG. 4, because Parienti does not use the terms ‘housing’ or ‘pump body’ nor does Parienti describe them.” *Id.* at 39. Patent Owner adds that “FIG. 4 does not provide an accurate physical depiction of the components” as “[i]t shows no structure for mounting the turbine and motor,” shows no “structure about the turbine to ensure the air drawn into the device is directed to pipe 9 and valve 19,” and “shows no electrical connections.” *Id.*

Although Patent Owner appears correct that Parienti (1) does not use the term “housing” or “pump body” and (2) does not provide certain details as to the identified structure, we do not agree with Patent Owner that these issues undermine Petitioner’s reliance on the aspects disclosed. For example, Figures 4 and 7 of Parienti together illustrate to one of ordinary skill in the art the relied-upon structure, even though those aspects are generally unexplained in the text of the written description. *See In re Aslanian*, 590 F.2d 911, 914 (CCPA 1979) (“[A] drawing in a utility patent can be cited against the claims of a utility patent application even though the feature shown in the drawing was unintended or unexplained in the specification of the reference patent.”); *In re Meng*, 492 F.2d 843, 847 (CCPA 1974) (“[A] drawing is available as a reference for all that it teaches a person of ordinary skill in the art.”).

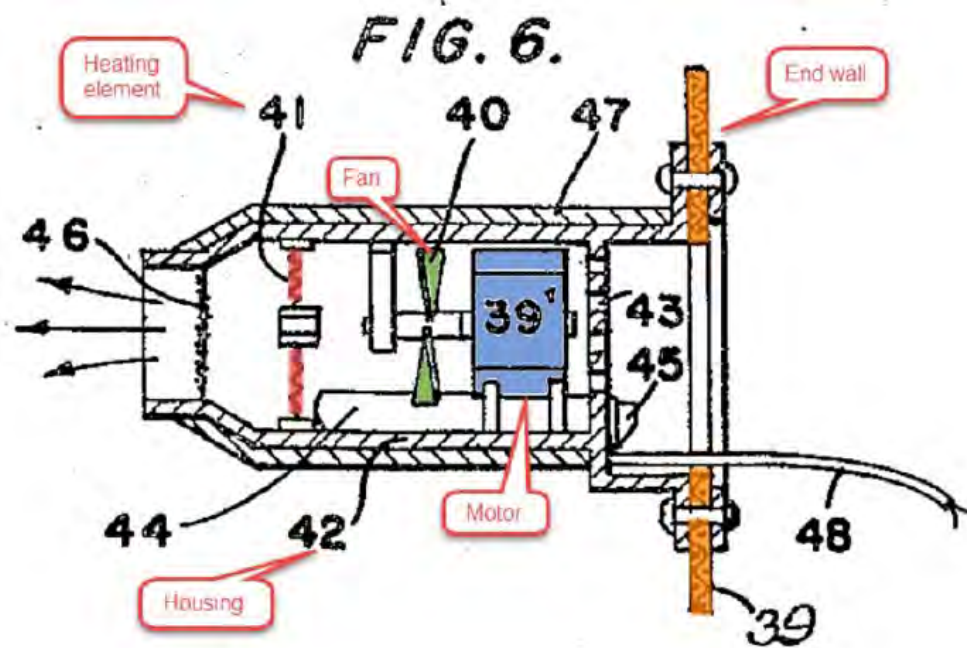
This view is supported by the testimony of Dr. Beaman, who states that Figures 4 and 5 “clearly show[] a pump structure including a housing, as it indisputably shows a structure that includes air intake 8, switch 3, and surrounds and contains the motor 2 and turbine 4.” Ex. 1625 ¶ 49, *cited at* Reply 5–6. For these reasons, we find that the record supports Petitioner’s view that the structure in gray highlighting in the annotated versions of Figures 4 and 7 of Parienti above (Pet. 72, 73) would have been understood as a “pump body” as that term is used in the limitation at issue. Further, contrary to Patent Owner’s assertion, figures relied on to support a finding that a prior art reference discloses certain aspects need not provide an “accurate physical depiction” of the entire device disclosed. PO Resp 39. The issue is how the prior art’s disclosures, including the drawings, would have been understood by one of ordinary skill in the art. *See, e.g., Meng*,

492 F.2d at 847. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that the proposed combination discloses the “electric pump” limitation.

d) The “Built Into” Limitation

Claim 1 recites that “the pump body is built into the exterior wall and wholly or partially recessed into the inflatable body, leaving at least a portion of the pump body exposed by the exterior wall.” Ex. 1001, 7:32–35 (“the ‘built into’ limitation”). Petitioner recognizes that, “[a]lthough it is clear from Parienti that the *air outlet* portion (pipe (9)) is recessed into the inflatable body (because it must feed air into the inflatable body), it is not clear whether the pump *body portion* of the housing is recessed into the inflatable body,” as required by claim 1. Pet. 74 (citing Ex. 1002 ¶ 227). Petitioner asserts that a person of ordinary skill in the art would have recessed Parienti’s housing into the inflatable body (air mattress 5) as taught by Goldsmith. *Id.*

Petitioner contends that Goldsmith teaches recessing a pump into a mattress. Pet. 75–76. Petitioner explains that Goldsmith discloses an external blower that supplies air to a mattress to vary the temperature of the inner compartments of the mattress. Pet. 75. Petitioner continues that Goldsmith also discloses, as an *alternative* configuration, that the blower could be recessed into the mattress. Pet. 75–76 (referencing the embodiment of Goldsmith’s Figure 6; Ex. 1002 ¶ 229). We reproduce Petitioner’s annotated version of Goldsmith’s Figure 6, below:



Pet. 76. Figure 6 depicts a “sectional view showing a modified form of air distributing chamber which forms a part of th[e] invention.” Ex. 1007, 2:30–32. In the annotated version of Figure 6 here, Petitioner added (1) orange highlighting and a text box identifying element 39 as “Endwall,” (2) blue highlighting and a text box identifying element 39’ as “Motor,” (3) green highlighting and a text box identifying element 40 as “Fan,” (4) red highlighting and a text box identifying element 41 as “Heating element,” and (5) a text box identifying element 42 as “Housing.” Pet. 76.

Petitioner contends that a person having ordinary skill in the art would have modified Parienti to include a recessed electric motor housing based on the teachings of Goldsmith for better spatial efficiency and increased durability. Pet. 77 (citing Ex. 1002 ¶ 231); *compare* Ex. 1007, Fig. 1 (depicting a blower on the floor and hose to the mattress), *with id.* at Fig. 6 (showing blower inside mattress). Petitioner explains that a person having ordinary skill in the art would have understood that recessing Parienti’s

pump would have reduced the physical impact of the pump on a user lying on mattress 5. Pet. 77 (citing Ex. 1002 ¶ 232). Petitioner also explains that recessing the pump would protect the pump and its components. Pet. 78 (citing Ex. 1002 ¶¶ 233–235).

First, we address the requirement that “the pump body is built into the exterior wall.” We find that the information in the Petition demonstrates, by a preponderance of the evidence, that Parienti discloses that its pump body (the gray structure identified in the context of the “electric pump” limitation above) is “built into” the exterior wall of mattress 5. *See* Pet. 73–74; Ex. 1005, 1:22–25, Figs. 1, 4, 5, 7, 9. Parienti discloses that its “device for automatic[ally] inflating and deflating” its mattress is “made interdependent with the mattress by means of *gluing* or any other means.” Ex. 1005, 1:22–25 (emphasis added). Because it is glued, the device is not detachable (or readily removed) from the exterior wall of the mattress. *See id.*, Figs. 4 & 7 (showing the alleged pump body on top of mattress 5); *see also* Pet. 73 (showing a colorized version of Figure 7, including mattress 5 in red and the pump body outlined in gray, which we have reproduced above).

We also find that the identified pump body in Parienti is “integrated into” the exterior wall of mattress 5 (as required by the construction of “built into” discussed above). We find that mattress 5 includes an air inlet—that is, an opening that allows the device to push air into and pull air out of the mattress. This opening accommodates the identified pump body. *See* Ex. 1005, Fig. 7; Pet. 73. As such, mattress 5 has an opening in its exterior wall and Parienti’s pump body takes the place of that opening. In this way, Parienti’s pump body is integrated into the chamber wall.

Patent Owner argues that Parienti does not disclose that its structure containing motor 2 and turbine 4 is not detachable from mattress 5. PO Resp. 41. Patent Owner argues that Parienti uses the term “interdependent” to describe the connection between the identified pump body and mattress 5, but that “interdependent” encompasses detachable connections. *Id.* Patent Owner explains that something glued to another thing *can be* detachable, such as by using detachable glues. *Id.* (referencing Ex. 2029 ¶ 89); *see* Ex. 1005, 2:45–51 (“Furthermore, the mattress (5) can be adapted to the mountain world and comprise, for example, a bedding device made preferably of new, light and insulating materials. Said bedding device can be made interdependent with the mattress through any of prior art processes, zipper or others.”); Ex. 2029 ¶ 90. Patent Owner adds that Parienti discloses that its “powering device” may be detached from its mattress. *Id.*; *see* Ex. 2029 ¶ 91.

Petitioner replies that Patent Owner’s argument regarding the detachability of Parienti’s pump body is directed to an *alternative* embodiment. Reply 7–8. Petitioner also argues that Patent Owner has previously stated that gluing two items together makes them *not* detachable from one another and that Dr. Stevick agrees with this statement. *Id.* at 8 (referencing Ex. 2029 ¶ 16). In reply, Patent Owner repeats that Parienti uses the word “interdependent” to describe detachable connections, like zippers. Sur-Reply 6–7.

Patent Owner’s arguments do not undermine the information in the Petition. First, we agree with Petitioner that gluing would attach Parienti’s powering device to its air mattress so that the device is not detachable (or

readily removed) from the exterior wall of the mattress. *See* Pet. 73–74; Reply 7–8; Ex. 1002 ¶¶ 225–227; Ex. 1625 ¶¶ 52–54.

Moreover, Parienti’s use of the term “interdependent” for attachment mechanisms that *are* detachable—such as zippers—does not undermine our finding. We base our finding on Parienti’s express disclosure that the “device” (which includes the identified pump body) is glued to the mattress, not on the use of the term “interdependent.” *See* Ex. 1005, 1:24–25. Parienti further states that there is “[n]o more need to get an air pump,” further supporting that the glued embodiment is not detachable. *See id.* at 1:25–27. Indeed, the term “interdependent” merely means two things are dependent upon one another.¹⁶ This term, in and of itself, does not suggest that this dependence is permanent or temporary. In the case of gluing one structure to another, that dependence is not readily separated. In the case of zipping one item to another, that dependence is temporary.

We also conclude that Patent Owner’s reliance on Parienti’s cooler box embodiment is misplaced. *See, e.g.,* Sur-reply 7–8. Parienti clearly discloses that this configuration is an additional embodiment. *See* Ex. 1005, 3:44–46 (“According to *another embodiment*, this cooler principle can be applied to a box (23) separated from the mattress (FIG. 3).”) (emphasis added). In this additional embodiment, Parienti expands on its concept of a cylinder for an object, beverage, or foodstuff that receives airflow. *See id.* at 3:20–39. In the additional embodiment, the powering device is made detachable and used to send airflow to box 23, which can be used to cool the

¹⁶ *See, e.g.,* Ex. 3005 (MERRIAM-WEBSTER ONLINE DICT., interdependent, available at <https://www.merriam-webster.com/dictionary/interdependent> (last visited April 12, 2022)).

interior of a tent, caravan, car, or the like. *See id.* at 3:44–57. Also, the powering device would be available to inflate other air mattresses. *See id.* at 3:57–59. We discern no disclosure in Parienti to indicate that this additional embodiment is the identical configuration as that disclosed in the rest of Parienti, such that the device glued to mattress 5 must be detachable.

Patent Owner’s argument that pipe 9 is not “built into” the external wall of mattress 5 (PO Resp. 42–44; Sur-reply 8–9) does not undermine the analysis above, as Petitioner does not rely on pipe 9 in Parienti as to the requirement at issue. For the reasons above, we find that the information in the Petition demonstrates, by a preponderance of the evidence, that Parienti discloses that “the pump body is built into the exterior wall.”

Second, we turn to the requirement that “the pump body is . . . wholly or partially recessed into the inflatable body, leaving at least a portion of the pump body exposed by the exterior wall.” In the Response, Patent Owner does not contest Petitioner’s positions as to this claim language. *See* PO Resp. 40–44. But in the Sur-reply, Patent Owner argues that “Petitioner[] offered no support for how the combination of Parienti and Goldsmith allegedly provides a ‘*pump body that is . . . wholly or partially recessed.*’” Sur-reply 4. First, this argument is untimely. *See* Consolidated Trial Practice Guide 74 (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuide> Consolidated (“TPG”) (“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.”).

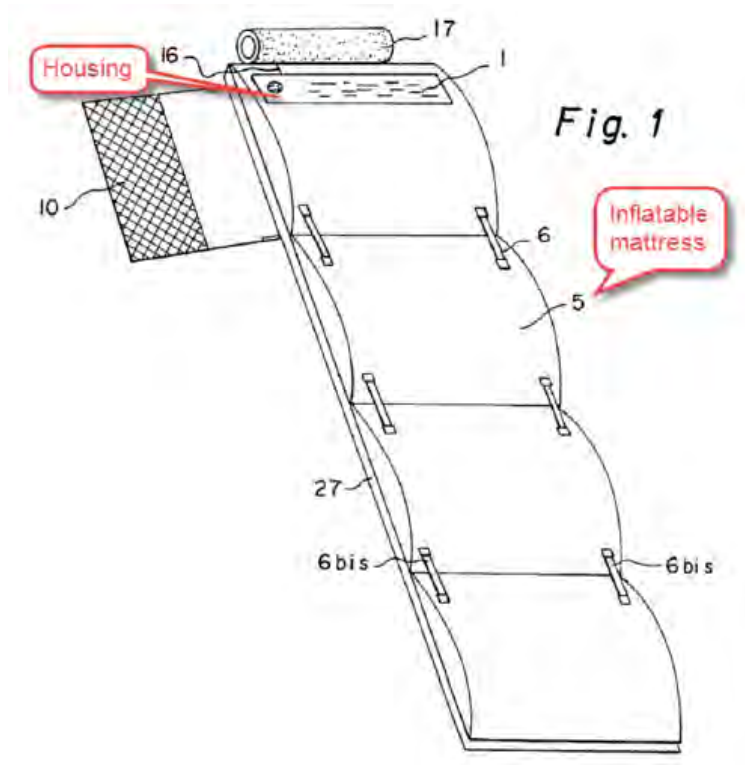
Moreover, we view the four-page discussion in the Petition as adequately explaining how the proposed combination satisfies this claim

language. *See* Pet. 75–78; *see, e.g.*, Ex. 1002 ¶ 234 (providing modified versions of Parienti’s Figures 4 and 7, depicting Parienti’s pump partially recessed into the inflatable body, leaving at least a portion of the pump body partially exposed); PO Resp. 36–37 (acknowledging the proposed modification). The Federal Circuit’s decision further supports this finding. *See Intex*, 860 F. App’x at 723 (“[Petitioner’s] argument regarding its proposed modification showed that Parienti was already close to the challenged claims, and only a slight change was needed to satisfy the broadest reasonable interpretation of ‘wholly or partially’ recessing a pump. This showing, together with [Petitioner’s] showing that numerous references since the late 1800s illustrated prior artisans’ intuitive desire to recess pumps to save space, satisfied [Petitioner’s] burden.”). Accordingly, we find that the information in the Petition demonstrates, by a preponderance of the evidence, that the proposed combination satisfies the requirement that “the pump body is . . . wholly or partially recessed into the inflatable body, leaving at least a portion of the pump body exposed by the exterior wall.”

e) The “Permanently Held” Limitation

Claim 1 also includes a requirement that “the pump body is permanently held by the inflatable body.” Ex. 1001, 7:35–36 (“the ‘permanently held’ limitation”). Petitioner argues that Parienti discloses this requirement. Pet. 78–79.

In support, Petitioner provides the following annotated version of Figure 1 of Parienti:



Pet. 79 (citing Ex. 1002 ¶ 236). Figure 1 depicts “a plan view of the solar powered mattress of the . . . invention.” Ex. 1005, 1:36–37. In the annotated version of Figure 1 here, Petitioner added (1) a text box identifying element 5 as “Inflatable mattress” and (2) a text box identifying a “Housing.” Pet. 79. Referring to this annotated Figure, Petitioner states that this limitation is met because “Parienti disclosed that its motorized pump housing ‘is made *interdependent* with the mattress [5] by means of *gluing or any other means.*’” Pet. 78 (quoting Ex. 1005, 1:24–25 (emphases added)). Patent Owner does not present arguments for this limitation. We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that Parienti discloses this limitation.

f) Reasons to Modify Parienti Based on Goldsmith

In the original Final Written Decision in this proceeding, we discussed each of Petitioner’s alternative reasons that one of ordinary skill in the art would have modified Parienti in view of Goldsmith as proposed, and we found, “based on weighing all of the evidence and considering the parties’ arguments, that Petitioner’s reasoning does not persuasively include rational factual underpinnings.” Final Dec. 50; *see also id.* at 32–51 (entire discussion). Thus, we determined “that Petitioner d[id] not persuasively support its assertion that a person having ordinary skill in the art would have had reason to modify Parienti as proposed.” *Id.* at 50.

On appeal, the Federal Circuit “h[e]ld that [Petitioner] satisfied its burden of proving obviousness” and remanded for the Board to address any remaining issues, such as objective indicia of nonobviousness. *Intex*, 860 F. App’x at 723–24. More specifically, as to the reasons to modify Parienti as proposed, the Federal Circuit stated that Petitioner’s “argument regarding its proposed modification showed that Parienti was already close to the challenged claims, and only a slight change was needed to satisfy the broadest reasonable interpretation of ‘wholly or partially’ recessing a pump” and that “[t]his showing, together with [Petitioner’s] showing that numerous references since the late 1800s illustrated prior artisans’ intuitive desire to recess pumps to save space, satisfied [Petitioner’s] burden.” *Id.* at 723.

Accordingly, Petitioner has persuasively demonstrated that a person of ordinary skill in the art at the time of the invention would have had reason to modify Parienti as proposed, based on Goldsmith. As directed by the Federal Circuit, we turn now to the evidence as to objective indicia of

nonobviousness, which was not addressed in the original Final Written Decision.

g) Objective Indicia of Nonobviousness

Objective evidence of nonobviousness, when present, must always be considered as part of an obviousness inquiry. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012). Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the patent's invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that one or more of the Challenged Claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Objective evidence may include long-felt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17–18; *Leapfrog Enters., Inc. v. Fisher–Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

“For objective evidence to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). A nexus must be demonstrated for all types of objective evidence of nonobviousness. *See id.* (addressing nexus generally); *Rambus Inc. v. Rea*, 731 F.3d 1248, 1256 (Fed. Cir. 2013) (addressing long-felt need); *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1364 (Fed. Cir. 2012) (addressing copying); *In re Kao*, 639 F.3d 1057, 1069 (Fed. Cir. 2011) (addressing unexpected results); *Muniauction, Inc. v. Thomson Corp.*,

532 F.3d 1318, 1328 (Fed. Cir. 2008) (addressing praise); *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (addressing commercial success).

“[T]here is a presumption of nexus for objective considerations when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘is the invention disclosed and claimed in the patent.’” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1329 (Fed. Cir. 2016) (internal citation omitted); *see also PPC Broadband, Inc. v. Corning Optical Commc’ns RF, LLC*, 815 F.3d 734, 747 (Fed. Cir. 2016) (“Because the evidence shows that the SignalTight connectors are ‘the invention disclosed and claimed in the patent,’ we presume that any commercial success of these products is due to the patented invention This is true even when the product has additional, unclaimed features.”) (internal citations omitted).

“[T]he purpose of the coextensiveness requirement is to ensure that nexus is only presumed when the product tied to the evidence of secondary considerations is the invention disclosed and claimed.” *Lectrosonics*, Paper 33 at 32 (citing *Fox Factory*, 944 F.3d at 1374) (internal quotations omitted). “[T]he degree of correspondence between a product and the patent claim falls along a spectrum. At one end of the spectrum lies perfect or near perfect correspondence. At the other end lies no or very little correspondence.” *Id.* (citing *Fox Factory*, 944 F.3d at 1374) (internal quotations omitted). Also, “[a] patent claim is not coextensive with a product that includes a ‘critical’ unclaimed feature that is claimed by a different patent and that materially impacts the product’s functionality.” *Id.* (citing *Fox Factory*, 944 F.3d at 1375) (internal quotations omitted).

Patent Owner produces evidence directed to alleged commercial success, copying, failure to use alternatives, broad acceptance, praise,

licensing, long-felt need, and skepticism of others¹⁷. PO Resp. 75–84. We address each indicia in turn, below, for all of the Challenged Claims. First, however, we address nexus generally.

(1) Nexus

As we explain in greater detail below, based on the complete record, we determine that Patent Owner is entitled to a presumption of nexus with respect to certain Challenged Claims because Patent Owner has “show[n] that the asserted objective evidence is tied to . . . specific product[s] and [those] products ‘[are] the invention disclosed and claimed in the patent.’” *See WBIP*, 829 F.3d at 1329 (quoting *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997)); *see also Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 32 (PTAB Jan. 24, 2020) (precedential) (“A patentee is entitled to a presumption of nexus ‘when the patentee shows that the asserted objective evidence is tied to a specific product and that product “embodies the claimed features, and is coextensive with them.”’” (quoting *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019)). This presumption is based solely on the stipulations of infringement by certain competitors, as Patent Owner has failed to provide persuasive evidence that serves as a basis for a nexus for its own products or any competitor products not covered by the stipulation.

In particular, relying on the testimony of Dr. Stevick, Patent Owner asserts that its products “and competitor products practice the inventive aspects of the ‘018 [p]atent [c]laims.” PO Resp. 77 (citing Ex. 2029 ¶¶ 155–

¹⁷ Patent Owner characterizes this indicium of nonobviousness as “against conventional wisdom.” PO Resp. 83.

168 & Appx.). First, Patent Owner points out that certain competitors involved in the Litigation¹⁸ admitted that their products infringed some of the Challenged Claims. *See id.*; Ex. 2025 (Notice Regarding Infringement Defense in the Litigation) at 2–4. Specifically, Patent Owner contends that “Intex and Bestway, the largest makers of airbeds sold in the U.S., admitted their products infringe the ‘018 [p]atent [c]laims.” PO Resp. 77 (citing Ex. 2025). Second, Patent Owner argues that “Dr. Stevick analyzed the industry and found an entire category of electric ‘built-in-pump’ airbeds to be coextensive with the ‘018 [p]atent [c]laims.” *Id.* (citing Ex. 2029 ¶¶ 172, 190, 234). Third, Patent Owner relies on Dr. Stevick’s testimony that its own products practice the Challenged Claims. *Id.*; *see* Ex. 2029 ¶¶ 155–165 (containing analysis of Patent Owner’s products against the Challenged Claims).

Petitioner counters that Patent Owner is not entitled to a presumption of nexus. Reply 27. Petitioner argues that Patent Owner’s declarant failed to fully analyze any of Patent Owner’s products against the Challenged Claims. *Id.* Petitioner also argues that Patent Owner’s nexus position relies on equating use of the phrase “built-in pump” in marketing material with falling within the scope of the Challenged Claims. *Id.*

As to the admission of infringement by certain competitors in the Litigation, products from Airtek, Air Cloud, Air Comfort, AirBedz, Altimair, Pittman, and TexSport admittedly infringe claims 1, 7, and 11–14 (i.e., most, but not all, of the Challenged Claims) of the ‘018 patent.

¹⁸ The “Litigation” refers to an infringement suit in the U.S. District Court for the Eastern District of Texas, in a case styled *Team Worldwide Corp. v. Walmart, Inc., et al.*, No. 2-17-cv-00235-JRG. *See* Final Dec. 3–4.

Ex. 2025 at 2. Products from Intex, Bestway, and Boyd also admittedly infringe claims 1, 7, and 11–14. *Id.* at 4. Because some of Patent Owner’s objective evidence of nonobviousness is directed to these products, Patent Owner’s evidence in this regard demonstrates at least some showing of nexus.

We agree with Petitioner’s position that Dr. Stevick’s testimony fails to provide sufficient support that Patent Owner’s products practice any of the Challenged Claims. Reply 27. Specifically, we are not persuaded by the testimony of Dr. Stevick that:

I have personally reviewed the pumps incorporated in [Patent Owner’s] airbed models including the following built-in pump[s]: Old EZ III AC Pump (one chamber); New EZ III AC Pump (one chamber); EZ III AC Pump (dual chamber); EZ IV Remote AC Pump (one chamber); EZ IV Remote AC Pump (dual chamber); EZ IV Remote AC Pump (three chamber); EZ IV Remote AC Pump (four chamber); EZ V Dual Pump; and EZ V Auto Shut Off Pump (collectively, “TWW Pumps”).

I have determined that each of the TWW Pumps practice claims 1, 7, 11, 12, 13, and 14 of the ‘018 [p]atent [c]laims.

Ex. 2029 ¶¶ 157–158. Petitioner argues persuasively that Dr. Stevick fails to provide support for this opinion covering any of the “TWW Pumps.”¹⁹

Reply 27. Based on our review of the complete record, including Dr. Stevick’s testimony, we find that Dr. Stevick does not provide adequate support that even one of Patent Owner’s products practices any of the Challenged Claims. 37 Dr. Stevick’s analysis purports to compare Patent

¹⁹ Our review of the complete record did not provide us with any additional evidence to support this testimony, such as evidence in the record that packaging is marked with the ‘018 patent number or appropriate virtual marking. *See* 35 U.S.C. § 287(a).

Owner's Insta-bed product number 840018, which uses the EZ V AC Dual Pump, with claims 1 and 14. Ex. 2029 ¶¶ 158–162. Our review of this testimony indicates that Dr. Stevick compared different claim limitations of claim 1 against *different pumps*. Compare Ex. 2029 ¶¶ 159, 161, 162 (including testimony about EZ V AC Dual pump), with ¶ 160 (including testimony about EZ V Auto-Shutoff pump). Dr. Stevick does not provide any testimony about the similarities and differences of these two pump models or why his analysis equally applies to both pumps and the Insta-bed product number 840018.

In the remainder of his testimony on how Patent Owner's products allegedly practice claims 7, 11, and 12, Dr. Stevick (1) addresses the limitations of a challenged dependent claim and declares “[e]ach of the TWW pump models satisfy” the limitations without providing any additional information demonstrating how either of the two specific pumps identified in connection with claims 1 and 14 satisfy the limitation, or (2) relies on analysis of previous claims. See Ex. 2029 ¶¶ 163–165. Dr. Stevick also does not address claims 5 or 13.

In summary, although Dr. Stevick does provide *an* analysis of most Challenged Claims with respect to Patent Owner pumps, we agree with Petitioner that he does not fully analyze any of Patent Owner's products. See Reply 27. Accordingly, Patent Owner has not demonstrated that it is entitled to a presumption of nexus based on its own products practicing the Challenged Claims.

We also agree with Petitioner that Patent Owner is not entitled to a presumption of nexus based solely on a product having a “built-in pump.” Reply 27; see PO Resp. 77. Dr. Stevick testifies that he “personally

reviewed airbed models that account for at least the substantial majority of airbeds with electric built-in pumps (“BIP”) in the marketplace, and they follow the design of [Patent Owner’s] ‘018 [p]atent [c]laims.” Ex. 2029 ¶ 166. Dr. Stevick’s testimony about the airbeds he “personally reviewed” is entitled to little weight, as he does not provide any of the underlying analyses for his opinion (such as analyses from the Litigation), including which airbed models he reviewed or how the airbeds practice any of the Challenged Claims. *See* Ex. 2029 ¶¶ 166–168; 37 C.F.R. § 42.65(a); *see also Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1022 (Fed. Cir. 2017) (“[T]he Board was not required to credit Skky’s expert evidence simply because Skky offered it.”).

Dr. Stevick testifies that “[m]anufacturers and retailers note the importance of a built-in electric pump in their advertising.” Ex. 2029 ¶ 169. To support this opinion, Dr. Stevick references deposition testimony from corporate representatives from Bestway (USA) and Walmart. *Id.* Again, Dr. Stevick’s testimony is not persuasive. As Petitioner argues, Patent Owner does not provide persuasive evidence that supports the contention that *any* reference to an electric “built-in pump” indicates that the inflatable product practices one or more of the Challenged Claims. *See* Reply 27; Ex. 2029 ¶¶ 169–170.

In summary, based on the complete record, we determine that Patent Owner is entitled to a presumption of nexus with respect to certain Challenged Claims. This presumption is based solely on the stipulations of infringement by certain competitors in the Litigation, as Patent Owner has failed to provide persuasive evidence that serves as a basis for a nexus for its

own products or any competitor products not covered by the stipulation. *See* Ex. 2025 at 2–4.

We address Patent Owner’s arguments and evidence and Petitioner’s rebuttal arguments and evidence as to each specific indicium of nonobviousness, below.²⁰ In weighing this evidence, we consider how the evidence of record affects the degree of correspondence between a product and the patent claim, and whether “the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.” *Lectrosonics*, Paper 33 at 32 (citing *Fox Factory*, 944 F.3d at 1373–74) (internal quotations omitted).

(2) *Commercial Success*

“Demonstrating that an invention has commercial value, that it is commercially successful, weighs in favor of its nonobviousness.” *WBIP*,

²⁰ Patent Owner argues that “[t]he party asserting invalidity must overcome the presumption [of nexus] by *clearly and convincingly* proving secondary considerations are unrelated to the patented technology.” PO Resp. 77 (citing *WBIP*, 829 F.3d at 1329) (emphasis added). Patent Owner’s reliance on *WBIP* for this proposition is misplaced as that case involved district court litigation, where invalidity must be proved by clear and convincing evidence. *WBIP*, 829 F.3d at 1325; *see, e.g., Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1364 (Fed. Cir. 2018) (“A patent is presumed valid, and the burden of establishing invalidity of a claim rests on the party asserting invalidity by clear and convincing evidence.”). In an *inter partes* review proceeding, however, a petitioner must demonstrate, *by a preponderance of the evidence*, that a challenged claim is *unpatentable*. 35 U.S.C. § 316(e). Patent Owner provides no argument to support its proposition that Petitioner must overcome a presumption of nexus by clear and convincing evidence given the lower burden of proof for unpatentability in an *inter partes* review proceeding as compared to invalidity in a district court.

829 F.3d at 1337. Having determined that there is at least some nexus, we consider Patent Owner’s arguments regarding the commercial success of the patented products (both Patent Owner’s products and other products that allegedly practice the claims). Patent Owner contends that “[s]ales of hundreds of millions of dollars of patented products proves ‘overwhelming’ commercial success.” PO Resp. 77–78 (citing an unpublished decision from the U.S. District Court for the Northern District of Texas). Patent Owner continues that “sales of the patented products by Walmart alone have exceeded [REDACTED].” *Id.* at 78 (citing Ex. 2638 ¶ 14; Ex. 2029 ¶¶ 176–177, 192) (emphasis omitted). Patent Owner contends that “[t]he market for infringing airbeds is a significant portion of the overall airbed market and constitutes most airbed sales by revenue” and that “[t]he industry continues to grow, showing commercial success.” *Id.* (citing Ex. 2638 ¶¶ 15–16). Patent Owner argues that “[t]hese airbeds are sold due to the ‘018 patented design.” *Id.* (citing Ex. 2029 ¶¶ 166–177, 192–203).

Patent Owner also contends that “Petitioner[] and Real-Party-in-Interest Coleman’s own internal research shows consumers are willing to pay a premium for ‘018 patented airbeds over comparable non-built-in-pump airbeds.” PO Resp. 78–79 (citing Ex. 2638 ¶¶ 42–53, 61–85; Ex. 2029 ¶¶ 178, 226–237).²¹ This research includes online interviews with

²¹ Patent Owner notes that a protective order in the Litigation was modified to allow “use of protected documents in the ‘pending IPRs—to the extent authorized by the Patent Trial and Appeal Board.” PO Resp. 78 n.18; *see also* Ex. 2731 (providing the modified protective order). Patent Owner adds that because “the modified district court protective order allows the use of [L]itigation discovery in Patent Owner’s possession to the extent the Board allows, in addition to documents the Board has ordered produced

individuals who have purchased airbeds within 12 months of the survey. *See, e.g.*, Ex. 2697 at 2; Ex. 2698 at 2, *cited in* Ex. 2638 ¶¶ 74–76.

Petitioner responds that unclaimed features, such as comfort and durability, contributed to any commercial success. Reply 28–29. Petitioner contends that these unclaimed features of airbeds are extensively advertised and are consistently rated as more important to customers than a pump. *Id.* (citing Ex. 1649 ¶¶ 9–11, 19–39, ¶¶ 21–22 n.24–27; Ex. 1625 ¶¶ 158–159; Ex. 1650 ¶¶ 8–19).

For example, Petitioner argues that comfort and durability are the most important features of an airbed to customers and that Patent Owner fails to address Petitioner’s evidence that supports its position that unclaimed features are responsible for the commercial success. Reply 29. Petitioner argues that Patent Owner “equate[s] ‘built-in pumps’ with any ‘premium’ products that generate higher revenue and profits, including raised height airbeds.” *Id.* (citing Ex. 1649 ¶¶ 40–44, 66–70, 72). Petitioner contends that, contrary to Patent Owner’s position, “the evidence demonstrates that numerous product features create ‘premium’ airbed products.” *Id.* (citing Ex. 1649 ¶¶ 40–44, 66–70, 72; Ex. 1670 at 90–91, 201–202).

in discovery, Patent Owner’s expert declarations also address [e]xhibits . . . produced in the litigation for the Board’s consideration.” PO Resp. 79 n.18. The analysis of Patent Owner’s contentions as to commercial success, including any of the declarants’ analyses that rely on the exhibits listed in footnote 18 of the Patent Owner Response, should in no way be construed as the Board authorizing Patent Owner to use these exhibits. The sole extent of any authorization from the Board to use confidential information from the Litigation is presented in Paper 41.

Petitioner also argues that Patent Owner did not “address whether market share was impacted when the claimed features were introduced to the market.” Reply 30. Petitioner argues that Intex’s growth in sales on which Patent Owner relies “is tied directly to Intex’s patented, comfort- and durability-focused Dura-Beam® product line—which is completely unrelated to the Challenged Claims.” *Id.* (citing Ex. 1649 ¶¶ 55–57, Schedules 2–4; Ex. 1650 ¶¶ 8–22; Exs. 1651, 1652, 1654).

Finally, Petitioner argues that “the vast majority of airbeds purchased by consumers do not have a ‘built-in pump’ (referred to by [Patent Owner] as ‘NBIP’ sales), further demonstrating that a ‘built-in pump’ (whether covered by the Challenged Claims or not) is not important to the majority of consumers.” Reply 30 (citing Ex. 1649 ¶¶ 45–54, 57).

In reply, Patent Owner argues that “Petitioner[] do[es] not provide any credible economic evidence or analysis to support their assertion that unclaimed features create commercial success.” Sur-reply 26–27. Patent Owner contends that the unclaimed features “Petitioner[] mention[s] are available in BIP airbeds that practice the claims and NBIP airbeds” and that “Dr. Becker considered these other airbed features in his analysis.” *Id.* at 27 (citing Ex. 1648, 243:19–245:12). Patent Owner continues that “the data that Dr. Becker considered for [REDACTED] of airbed sales at Walmart accounts for these other features which are found in both BIP and NBIP airbeds.” *Id.* Patent Owner also replies that Petitioner’s arguments concerning market share and units sold are unavailing. *Id.* Patent Owner asserts that Walmart “sold over [REDACTED] worth of built-in pump airbeds that practice the Challenged claims from April 2011 through August 2018.” *Id.* at 23 (citing Ex. 2638 ¶ 14; Ex. 2749 at 82 (373:4–20)).

[REDACTED]). This research shows that comfort and durability outrank a built-in pump²² in a listing of most important features. *See id.* at 10, 11.

Other record evidence also supports this finding. For example, Coleman customer research shows that, in addition to built-in pumps, which were “highly valued” (e.g., [REDACTED] [REDACTED]), “[REDACTED] [REDACTED].” Ex. 2692 at 20, 22, 25; *see also* Ex. 2644 at 15 (indicating that the most important features are comfort, durability, and not leaking air); Ex. 2696 at 8 (indicating that airbed efficacy, including durability and comfort, is more important in brand preference than advanced pump features, including the pump being built into the mattress); Ex. 2697 at 20 (indicating that customers would be willing to pay more for durability).²³ Our review of the totality of the evidence shows that features related to comfort and durability, as well as the type of pump, are considerations that contribute more significantly to the sales of airbeds than a built-in pump.

We recognize that some of the evidence of record supports the position that customers are concerned with inflation or deflation times. *See,*

²² We note that Coleman, the source of this information, disputes that any of its airbeds infringe the independent claims of the ’018 patent and, the evidence of record does not demonstrate that any Coleman airbed falls within the scope of any Challenged Claims. *See* Ex. 2025 at 3. Coleman’s use of the term “built in pump” in this survey analysis serves to illustrate that the term is not necessarily an analog for practicing the claims of the ’018 patent.

²³ These exhibits were cited by declarants’ analyses. *See* Ex. 1625 ¶ 160; Ex. 1649 ¶¶ 21, 26–29, 39, 62, 67; Ex. 2029 ¶¶ 226–228, 232; Ex. 2638 ¶ 74.

has a built-in pump. Reply 30; Ex. 1649 ¶ 52. In this time period, [REDACTED] of airbed sales at Walmart were for airbeds without built-in pumps and sales for airbeds without built-in pumps had similar profit percentages as sales for airbeds with built-in pumps. *See* Ex. 1649 ¶ 52. This [REDACTED], on a per unit basis, supports an inference that customers' purchases are driven, at least in part, by factors other than whether an airbed has a built-in pump, as recited in the Challenged Claims.

Finally, our finding of limited commercial success is consistent with the decision in binding arbitration between Petitioner and Patent Owner involving the '018 patent (and other patents). In that proceeding, the arbitrator, [REDACTED]

[REDACTED].” Ex. 2765 at 11.

At the same time, we are not persuaded by Petitioner's argument that the increase in sales of Intex airbeds that included built-in pumps was attributable to its introduction of the DURA-BEAM[®] product line. Reply 30. Petitioner relies on declaration testimony from Mr. Schoettelkotte, its declarant with respect to economic analyses, and Mr. Slate, Intex's Director of Sales, both of which reference data from Exhibits 1651 and 1652. *See* Ex. 1649 ¶¶ 55–57; Ex. 1650 ¶ 22. We cannot discern, without additional analysis from Petitioner or its declarants, how these data support Petitioner's contention.²⁴

²⁴ At oral hearing, Petitioner presented an analysis of its sales data to support its contention, which showed sales trends. *See* Tr. 155:20–156:7. That analysis, however, does not appear in Petitioner's Reply.

Third, we discount slightly the weight of this objective evidence because Patent Owner’s commercial success assertion includes a single retailer—Walmart—without any explanation as to the significance of the sales of this single retailer to the entire market. PO Resp. 77–79. Although Patent Owner contends that infringing airbeds make up “a significant portion of the overall airbed market and constitute[] most airbed sales by revenue,” this contention is unsupported. *Id.* at 78 (citing Ex. 2638 ¶¶ 15–16). Dr. Becker’s declaration, at paragraphs 15 and 16, provides a summary of his opinions and does not appear to relate directly to this issue. Ex. 2638 ¶¶ 15–16. As such, although we recognize that the amount of revenue from the Walmart sales is considerable and entitled to some weight, the lack of overall market share data—although not required to show commercial success—cuts against the Walmart sales data. *See, e.g., Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360–61 (Fed. Cir. 1999) (“Based on Tec Air’s sales evidence [of millions of products sold], the jury reasonably could have found that the invention enjoyed commercial success. Denso argues that this evidence is insufficient because Tec Air failed to provide market share data. Although sales figures coupled with market data provide stronger evidence of commercial success, sales figures alone are also evidence of commercial success.”); *cf. In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (“This court has noted in the past that evidence related solely to the number of units sold provides a very weak showing of commercial success, if any.”); *Chemours Co. FC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1378 (Fed. Cir. 2021) (stating that “market share data, though potential useful, is not required to show commercial success” (citing *Tec Air*, 192 F.3d at 1360–61)).

We are persuaded, based on the complete record, that there is not a strong nexus between the revenue value for infringing products sold at Walmart and the patented invention. We find that the strength of any nexus is offset by the evidence of record concerning the impact of non-patented features on customer demand. That is, to the extent necessary and for completeness, we determine that Patent Owner has not demonstrated persuasively that “the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.” *Lectrosonics*, Paper 33 at 32 (citing *Fox Factory*, 944 F.3d at 1373–74) (internal quotations omitted). In conclusion, we find that Patent Owner is entitled to some, but not considerable, weight with respect to the objective evidence of commercial success.

(3) Copying

“Copying may indeed be another form of flattering praise for inventive features,’ and thus evidence of copying tends to show nonobviousness.” *WBIP*, 829 F.3d at 1336 (quoting *Crocs, Inc., v. Int’l Trade Comm’n*, 598 F.3d 1294, 1311 (Fed. Cir. 2010)). Patent Owner contends that, “[a]s admitted by Petitioner[], consistent with Dr. Stevick’s opinion, airbed manufacturers copied [Patent Owner’s] commercially successful patented built-in-pump airbed technology.” PO Resp. 79 (citing Ex. 2029 ¶¶ 180–203, 207–213; Ex. 2638 ¶¶ 58–60). Patent Owner adds that “[t]he products in the market look nothing like the prior art asserted in this IPR—they follow [Patent Owner’s] ’018 patented design.” *Id.* (citing Ex. 2029 ¶¶ 193, 212; Exs. 2682–2686).

We determine that Patent Owner’s evidence of copying is entitled to no weight, as the record lacks any evidence of copying, which “may include

internal documents, direct evidence such as photos of patented features or disassembly of products, or access and similarity to a patented product.” *Liqwd, Inc. v. L’Oreal USA, Inc.*, 941 F.3d 1133, 1137 (Fed. Cir. 2019).

First, Patent Owner does not direct us to any internal documents or admissions by a competitor that it copied one of Patent Owner’s products embodying any of the Challenged Claims of the ’018 patent. *See Liqwd, Inc.*, 941 F.3d at 1137. Instead, the deposition testimony relied on by Dr. Stevick generally shows that built-in pump designs are valued in the marketplace. *See* Ex. 2029 ¶ 211 (discussing Ex. 2609, 41:4–14, 42:15–43:5, 78:9–12, 111:13–17, 125:1–127:13, 166:4–18; Ex. 2601, 53:2–16).

Second, Dr. Stevick provides two side-by-side pictures of “a TWW Serta pump and the Intex 619A pump built into airbeds” and states that “both pumps are integrated into the airbed in the same way, have approximately the same amount of the pump body built into the airbed, and have the same amount exposed to the outside.” Ex. 2029 ¶ 212. We do not find this evidence persuasive as to alleged copying, however, as Dr. Stevick fails to explain the source of this evidence and fails to show how these allegedly similar features link back to features in the Challenged Claims. *See Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004) (correlation between introduction of allegedly infringing product and patented product does not prove causation when it comes to copying); *cf. Liqwd, Inc.*, 941 F.3d at 1137 (“[I]f the only evidence of copying was a competitor’s abandonment of one product design and subsequent adoption of a design similar to that of a patented product after issuance of the patent, that did ‘not establish that [the competitor] engaged in copying.’”) (second

alteration in original). In conclusion, we find that Patent Owner is entitled to no weight with respect to the objective evidence of copying.

(4) Failure to Develop Alternatives

Consideration of objective evidence of nonobviousness also includes “the failure of others to produce alternatives to the patented invention.” *GPAC Inc.*, 57 F.3d at 1580. As with other objective indicia, this evidence must demonstrate that any “inability or unwillingness of competitors” to develop alternative products “is rooted in the subject matter” of the Challenged Claims. *See id.* Patent Owner contends that Petitioner “attempted to design around the ’018 [p]atent but failed—they knew consumers would not accept a design without a permanently built in pump.” PO Resp. 82 (citing Ex. 2029 ¶¶ 217–220, App.).

In support of this contention, Patent Owner relies on Dr. Stevick’s testimony about Intex’s 619B and 619C pumps, which Intex developed as alternatives to its admittedly infringing pump. PO Resp. 82; Ex. 2029 ¶ 219. Dr. Stevick includes an analysis on how the “619B and 619C designs continue to follow the claims” of the ’018 patent. *See* Ex. 2029 ¶ 219, App. Dr. Stevick further states that Petitioner did not develop any alternative similar to the products described in the prior art and asserted in this proceeding. *Id.* ¶ 219.²⁵

²⁵ Dr. Stevick also testifies that “[e]ven 17 years after the patent was filed, in the face of litigation with the prospect of damages and possibly an injunction against their products, the market’s biggest companies . . . were unable to avoid the patent claims despite three different attempts to develop alternatives.” Ex. 2029 ¶ 220. We do not consider this statement at all, as it constitutes argument that should have been included in the Patent Owner Response. *See* Paper 69 at 5.

Petitioner responds that they developed noninfringing alternatives to a built-in pump as claimed in the Challenged Claims, and customers immediately purchased the products. Reply 31. As noted above, however, Dr. Stevick testifies that those alternative designs infringe each of the Challenged Claims and, [REDACTED]

[REDACTED]. See Tr. 110:17–111:5; Ex. 2765, 14–20.

We determine that this objective evidence is entitled to some weight. The record indicates that Petitioner [REDACTED] [REDACTED] See Ex. 2029 ¶ 219, App.; Ex. 2765 at 14–20. We note, however, contrary to Patent Owner’s assertion, that Patent Owner does not offer any direct evidence that Petitioner “knew consumers would not accept a design without a permanently built in pump.” PO Resp. 82. Indeed, as mentioned above in connection with commercial success, [REDACTED] of airbed sales at Walmart were for airbeds without built-in pumps and sales for airbeds without built-in pumps had [REDACTED] as sales for airbeds with built-in pumps. See Ex. 1649 ¶ 52.

Although Patent Owner’s contention is not directly supported, we find, based on our review of the complete record, that Petitioner had an incentive to design around the ’018 patent and attempted to do so by making a minimal change to its built-in pump designs, which supports at least an inference that customers would not have accepted a drastically different design. See Ex. 2029 ¶ 219; Ex. 2765 at 14–20; see also Ex. 2634, Articles 5, 6 ([REDACTED])

[REDACTED]
[REDACTED]). In conclusion, we find that Patent Owner is entitled to some weight with respect to the objective evidence of failure to develop alternatives.

(5) Broad Acceptance, Praise, and Licensing

Industry acceptance of an invention may also provide an objective indicium of nonobviousness. *See Allen Archery, Inc. v. Browning Mfg. Co.*, 819 F.2d 1087, 1092 (Fed. Cir. 1987) (considering copying, praise, unexpected results, and industry acceptance as indicators of nonobviousness). Also, evidence that the industry praised a claimed invention or a product that embodies the patent claims weighs against an assertion that the same claim would have been obvious. *WBIP*, 829 F.3d at 1334. Praise from industry participants, especially competitors, is probative as to nonobviousness because such participants “are not likely to praise an obvious advance over the known art. Thus, if there is evidence of industry praise of the claimed invention in the record, it weighs in favor of the nonobviousness of the claimed invention.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1053 (Fed. Cir. 2016) (en banc). Finally, “[l]icenses taken under the patent in suit may constitute evidence of nonobviousness; however, only little weight can be attributed to such evidence if the patentee does not demonstrate ‘a nexus between the merits of the invention and the licenses of record.’” *GPAC Inc.*, 57 F.3d at 1580 (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983)).

Patent Owner contends that its “patented products launched an entire category of ‘built-in pump’ airbeds.” PO Resp. 82 (citing Ex. 2638 ¶¶ 15, 16, 44–53). Patent Owner also contends that “Petitioner[’s] own witnesses

testified about the value of the '018 patented invention, an admission of non-obviousness.” *Id.* (citing Ex. 2638 ¶¶ 86–93; Ex. 2029 ¶¶ 190–191, 196–202, 211, 236–237). Patent Owner adds that the sales figures for Walmart’s products show “broad consumer acceptance.” *Id.* Patent Owner continues that “[c]ompanies specifically tout the patented technology in their advertisements, including box art and photos highlighting the patented design.” *Id.* (citing Ex. 2029 ¶¶ 169, 193; Ex. 2638 ¶¶ 86–93; Exs. 2653, 2680–2687). Patent Owner also contends that its “patents in the pending [*inter partes* reviews] including the ‘018 patent also have obtained more than [REDACTED] dollars in licensing.” *Id.* at 82–83 (citing Ex. 2638 ¶¶ 54–57; Ex. 2029 ¶ 238).

Petitioner responds that Patent Owner “points to no evidence that any licensing or alleged industry praise is the *direct* result of any claimed feature” (citing Ex. 1649 ¶¶ 61, 73–78) (emphasis added) and that “[t]he parties’ settlement agreement [that generated the licensing fees] should be given no weight” (citing *Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1038 (Fed. Cir. 2017)). Reply 31.

We find that this objective evidence is entitled to some, but not considerable, weight. With respect to Patent Owner’s contention that the invention of the '018 patent launched an entire category of airbeds, the evidence of record does not support the contention. Although Patent Owner directs us to paragraphs 15, 16, and 44 to 53 in Dr. Becker’s declaration, we do not discern, and Patent Owner does not adequately explain, how this testimony supports the contention that the '018 patent launched an entire category of airbeds. *See* PO Resp. 82; Ex. 2638 ¶¶ 15–16 (providing a summary of opinions), 44–53 (discussing nexus for commercial success).

As discussed above in the context of nexus, we agree with Petitioner that Patent Owner is not entitled to a presumption of nexus based solely on a product having a “built-in pump.” If we assume a nexus from the ’018 patent to a built-in pump feature, however, we afford some weight to Patent Owner’s contention that Petitioner’s witnesses testified about the value of the ’018 patented invention (PO Resp. 82). For example, Walmart’s advertising does highlight that feature. *See* Ex. 2638 ¶¶ 91. Further, the testimony of corporate witnesses of several accused infringers indicates some emphasis on built-in pumps. *See* Ex. 2029 ¶¶ 196–202, 237.

Patent Owner also contends that “[c]ompanies specifically tout the patented technology in their advertisements, including box art and photos highlighting the patented design,” to support its position that the large sales experienced by their product was due to the patented technology. PO Resp. 82. The evidence relied on by Patent Owner is directed to the term “built-in pump” generally. Again, assuming a nexus from the ’018 patent to a built-in pump feature generally, this evidence does highlight that feature. *Id.* (citing Ex. 2638 ¶¶ 86–93; Ex. 2029 ¶¶ 169, 193; Exs. 2653, 2680–2687).

Patent Owner’s evidence of large sales merely attempts to repackage commercial success as a different indicium of nonobviousness—broad acceptance by consumers. *See* PO Resp. 82 (citing Ex. 2638 ¶¶ 40–41). We address commercial success in its own subsection, above.

Finally, we give little weight to the settlement agreement in the context of this indicium. Patent litigation provides risk and uncertainty for a party and settlement represents a way to reduce that risk and uncertainty, independent of any value the parties place on the patented invention. *See Bosch Auto.*, 878 F.3d at 1038 (Fed. Cir. 2017) (“[L]icensing, without more,

is generally not a strong indication of nonobviousness if it cannot also be shown that the licensees did so out of respect for the patent rather than to avoid litigation expense.”). Here, Patent Owner fails to explain adequately how respect for the Challenged Claims, rather than avoiding litigation’s expense and risk, led to the settlement agreement. In conclusion, we give the objective evidence associated with broad acceptance, industry praise, and licensing some, but not considerable, weight.

(6) *Long-felt but Unsolved Need*

Evidence of a long-felt but unsolved need tends to show nonobviousness because it is reasonable to infer that the need would have not persisted had the solution been obvious; however, “[a]bsent 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.” *See Iron Grip*, 392 F.3d at 1325.

Patent Owner contends that, “[f]or decades the airbed industry sought after goals finally solved by the ‘018 patent, *i.e.*, recessed pump, holding air, not overheating” but argues that no one “created a working, commercially viable product before Mr. Wang’s invention.” PO Resp. 83 (citing Ex. 2029 ¶¶ 204–206). Patent Owner adds, without further explanation, that “Petitioner[’s] own asserted motivations to combine are further proof that there was a need, but it was not met until the ’018 patent.” *Id.*

Petitioner responds that Patent Owner’s declarant identifies the alleged long-felt need as “customer convenience,” which differs from the need identified in the Patent Owner Response and which was satisfied in the prior art. Reply 31–32.

We afford Patent Owner’s asserted objective evidence little weight. Patent Owner offers no persuasive evidence of a long-felt need for an inflatable product with a recessed pump that holds air and does not overheat. Our review of the cited paragraphs of Dr. Stevick’s testimony reveals that it merely describes prior art systems that differ from the Challenged Claims. *See e.g.*, Ex. 2029 ¶¶ 204–206. Dr. Stevick’s testimony does not direct us to any evidence of Patent Owner’s stated long-felt need. Indeed, as Petitioner points out, Dr. Stevick’s testimony seems to be directed to an alleged long-term need for “consumer convenience.” Reply 31; *see* Ex. 2029 ¶ 204 (“[T]here was a long-felt need for consumer convenience related to the pump.”). We are persuaded by Petitioner’s argument that Dr. Stevick does not offer any evidence that even this alleged need existed. Reply 31–32.

For example, Dr. Stevick alleges that “[t]he problem persisted for over 100 years before” Mr. Wang (the named inventor of the ’018 patent) solved the problem, but Dr. Stevick’s testimony provides no evidentiary support that any problem existed. *See* Ex. 2029 ¶ 204. Although Dr. Stevick testifies that others failed, his testimony does not adequately explain why the previous designs did not provide customer convenience (the problem his testimony is directed to) or that the prior art solutions discussed even attempted to solve the problem of “customer convenience.” *See id.* Instead, Dr. Stevick’s testimony merely recounts the passage of time until the filing of the application that matured into the ’018 patent. *See id.* In conclusion, we give the objective evidence associated with long-felt need little weight.

(7) *Skepticism of Others*

“Evidence of industry skepticism weighs in favor of non-obviousness. If industry participants or skilled artisans are skeptical about whether or how

a problem could be solved or the workability of the claimed solution, it favors non-obviousness.” *WBIP*, 829 F.3d at 1335. Patent Owner contends that “[c]onventional wisdom taught away from the ’018 patented design.” PO Resp. 83 (citing Ex. 2029 ¶¶ 239–244). Patent Owner argues that advantages of detachable pumps include that they work with multiple beds, result in smaller deflated beds, have lower costs, have higher efficiencies, and avoid overheating. *Id.* Patent Owner argues that these concerns weigh against a built-in pump design and that, despite these concerns, Mr. Wang invented the claimed technology. *Id.*

We afford objective evidence of this indicium very little weight. First, even if we take the asserted disadvantages as true, such statements do not necessarily amount to credible evidence of industry skepticism or even arise to the level of teaching away from the Challenged Claims. Moreover, Patent Owner does not direct us to any persuasive evidence that the inflatable product industry was skeptical that a built-in pump could effectively be used with an inflatable product, such as an airbed.

Second, we afford Dr. Stevick’s testimony with respect to industry skepticism very little weight. Ex. 2029 ¶¶ 239–241. We find nothing in the cited testimony that directly addresses industry skepticism or teaching away from the Challenged Claims. Instead, this testimony merely identifies differences between the claimed inflatable product of the ’018 patent and prior art inflatable products. *See, e.g.*, Ex. 2029 ¶¶ 239–241. Novelty over certain prior art does not equate to industry skepticism or an industry teaching away from a certain solution. *See In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303, 1321 (Fed. Cir. 2011) (“A reference can distinguish prior art in order to show the novelty of an invention

without teaching away from combining the prior art with the invention disclosed in the reference.”).

Paragraphs 242 and 243 of Dr. Stevick’s testimony allegedly recount conversations between Mr. Wang and his son, a general manager for Patent Owner. As Petitioner persuasively points out, we have no documentation of these conversations or any other corroborating evidence and, to the extent that Dr. Stevick accurately characterizes the conversations, the interests of these parties in the outcome of this proceeding causes us to greatly discount their unsworn statements. Reply 32 (arguing that Patent Owner “relies on uncorroborated, biased conversations its experts had with the named inventor and no other relevant evidence”). In conclusion, we give the objective evidence associated with skepticism of others very little weight.

(8) Simultaneous Invention

Petitioner argues that “Chaffee constitutes an independent, near-simultaneous development of the claimed subject matter, which provides strong objective indicia of obviousness.” Reply 26 (citing Ex. 1625 ¶¶ 113–119). Petitioner does not further explain how Chaffee represents near-simultaneous invention in its Reply. *See id.* Dr. Beaman’s declaration includes an analysis of how Chaffee constitutes independent, near-simultaneous invention, by comparing the subject matter of certain Challenged Claims to the disclosure in the Chaffee ’836 provisional and Chaffee. *See* Ex. 1625 ¶¶ 113–119.

First, we disregard this analysis, as it is improperly incorporated by reference into Petitioner’s Reply, which merely provides the conclusory statement we quote above and references Dr. Beaman’s declaration. Dr. Beaman provides analysis *and argument* in the referenced paragraphs.

See, e.g., Ex. 1625 ¶ 114 (providing argument that “there can be no real dispute that Chaffee developed his invention independent of the named-inventor of the ’018 [p]atent”), ¶ 117 (arguing that certain subject matter, although not disclosed in the Chaffee provisional, is disclosed in Chaffee), ¶ 118 (arguing that Chaffee “constitutes a near-simultaneous invention to the ’018 patent”). When we consider Petitioner’s Reply arguments and evidence as a whole, we do not consider any “arguments” found *only* in Dr. Beaman’s testimony and not adequately explained in the Reply. *See* TPG 35–36; *cf.* Paper 69 at 5 (addressing Petitioner’s motion to strike portions of the Patent Owner Response that Petitioner contends improperly incorporate arguments into the Patent Owner Response and stating “the proper approach in such a situation is for the Board, when considering the arguments and evidence as a whole, to not consider any ‘arguments’ found only in a declaration and not adequately explained in the Patent Owner’s Response”) (emphasis omitted).

Second, Dr. Beaman’s analysis does not persuasively support Petitioner’s conclusory statement in its Reply, as it merely demonstrates that information in the Chaffee ’836 Provisional, together with information in Chaffee, corresponds to the claimed subject matter of the Challenged Claims. “[T]he possibility of near simultaneous invention by two or more equally talented inventors working independently, . . . *may or may not be an indication of obviousness* when considered in light of *all the circumstances.*” *Ecolochem, Inc. v. S. Calif. Edison Co.*, 227 F.3d 1361, 1379 (Fed. Cir. 2000) (quoting *Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1460 (Fed. Cir. 1984)) (emphasis added). Dr. Beaman does not adequately explain why, *when considered in light of all the*

circumstances, the invention of claim 1 of the '018 patent “was the product only of ordinary mechanical or engineering skill” (*Geo. M. Martin Co. v. All. Mach. Sys. Int'l LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010)). Accordingly, we do not afford any weight to this evidence.

(9) *Summary*

Weighing all of the objective evidence, we determine, on the complete record, that Patent Owner is entitled to some, but not considerable, weight in favor of nonobviousness.

h) *Conclusion as to Claim 1*

For the reasons discussed above (§§ II.C.1.a–f), the evidence presented by Petitioner strongly indicates that claim 1 would have been obvious over Parienti and Goldsmith. *Cf. Intex*, 860 F. App'x at 723 (“Intex’s argument regarding its proposed modification showed that Parienti was already close to the challenged claims, and only a slight change was needed to satisfy the broadest reasonable interpretation of ‘wholly or partially’ recessing a pump.”). For the reasons also discussed above (§ II.C.1.g), Patent Owner’s objective evidence weighs only slightly in favor of nonobviousness. When considering all of the evidence of obviousness and nonobviousness together (*see In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1079 (Fed. Cir. 2012)), we find Petitioner’s strong evidence of obviousness outweighs Patent Owner’s objective evidence of nonobviousness. Thus, we conclude Petitioner has demonstrated by a preponderance of the evidence that claim 1 would have been obvious over Parienti and Goldsmith.

2. *Dependent Claim 7*

Claims 7 recites: “The inflatable product as claimed in claim 1, further comprising a connector via which the electric pump is electrically connected to an electric power.” Ex. 1001, 8:12–14. Petitioner states that “Parianti discloses that ‘a photovoltaic cell array (1) supplies the power needed to operate the motor’” and that “[t]he photovoltaic cell array is electrically connected, via a three position switch (3), to the motor of the pump.” Pet. 79–80 (quoting Ex. 1005, 1:30–32) (citing Ex. 1005, 2:55–63). Petitioner contends that, “[w]hen the switch (3) is in the ‘inflating’ position or the ‘deflating’ position, it will electrically connect the pump’s motor to the photovoltaic cell array [to] operate the pump.” Pet. 80 (citing Ex. 1005, 2:55–63). Thus, according to Petitioner, “switch (3) is a connector that electrically connects the power supplied by photovoltaic cells to the pump.” *Id.* (citing Ex. 1002 ¶ 237).

Patent Owner argues that one of ordinary skill in the art would have understood “that claims 5 (Ground 6, which adds Walker), 7, and 11 all relate to AC voltage designs, while Parianti relates to a DC voltage design, because that is the kind of electricity that is generated by the solar cells.” PO Resp. 47. According to Patent Owner, “Petitioner[] admit[s] that Parianti and Goldsmith do not disclose connecting a pump via a rectifier to an electric power.” *Id.* (citing Pet. 87).

This argument directly conflicts with the ’018 patent. Specifically, claims 10 and 11—both of which, like claim 5, depend directly from independent claim 1—recite, respectively, “wherein the electric pump uses a direct current” (claim 10) and “wherein the electric pump uses an alternative current” (claim 11). Ex. 1001, 8:22–25. Thus, claim 1 *must* include within

its scope both DC and AC power sources. *See Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1445 (Fed. Cir. 1997) (“[W]e must not interpret an independent claim in a way that is inconsistent with a claim which depends from it”); *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1242 (Fed. Cir. 2003) (“If the dependent claims expressly recite ‘up to about 10%’ silicon, then the independent claims, *which must be at least as broad as the claims that depend from them*, must include aluminum coatings with ‘up to about 10%’ silicon.” (emphasis added)).

This understanding of the scope of claim 1 is also supported by the Specification, which describes exemplary connector 423 as “used for connecting an external power (*alternating current or direct current*) to charge the batteries 429 or directly to actuate the electric pump 42.” Ex. 1001, 4:29–31 (italics added and bolding removed); *see also PPC Broadband*, 815 F.3d at 755 (“We have often remarked that a construction which excludes the preferred embodiment is rarely, if ever correct. A construction which reads the preferred embodiment out of the scope of the claims would generally seem at odds with the intention of the patentee as expressed in the specification.” (internal quotations and citations omitted)). Further, claim 7 refers only to “an electric power” in this regard, which like claim 1 does not require the power to be AC, rather than DC, power.

Paragraph 100 of Dr. Stevick’s declaration merely repeats Patent Owner’s argument and does not provide additional support as to why one of ordinary skill in the art would allegedly understand claims 5, 7, and 11 to “relate to AC voltage designs.” Ex. 2029 ¶ 100, *cited at* PO Resp. 47–48.

We determine, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that claim 7 would have been obvious based on Parienti and Goldsmith.

3. *Dependent Claim 11*

Claim 11 recites: “The inflatable product as claimed in claim 1, wherein the electric pump uses an alternating current.” Ex. 1001, 8:24–25. Petitioner states that Parienti “explicitly discloses use of a photovoltaic cell, which is a DC power source,” but that “Goldsmith discloses a ‘blower unit 29’ where ‘current may be conveyed to the motor by means of a conductor [31] having the regulation plug connector 32.’” Pet. 80 (citing Ex. 1002 ¶ 238) (quoting Ex. 1007, 3:5–10). According to Petitioner, one of ordinary skill in the art “would have understood that the ‘regulation plug connector 32’ would have been a standard wall plug that supplies standard AC” and that, therefore, “Goldsmith discloses an electric pump that uses AC.” *Id.* (citing Ex. 1002 ¶ 239).

Petitioner states that “[i]t would have been obvious to [one of ordinary skill in the art] to combine Goldsmith’s teaching of an AC power source for the electric pump to provide Parienti’s mattress with an alternative power source” and that one of ordinary skill in the art “would have recognized that flexibility for powering the electric motor (*e.g.*, plugging it into a standard wall outlet) would be desirable for a portable, multifunctional device like Parienti’s.” Pet. 80–81 (citing Ex. 1002 ¶ 240). According to Petitioner, “in environments where the ambient light is insufficient to provide DC power from the solar cells (*e.g.*, in a dark tent or on a cloudy day), an alternative source of power, such as a standard AC power source, would have been obvious.” Pet. 81 (citing Ex. 1002 ¶ 240). Petitioner also states that

“[n]umerous prior art inflatable products recognize the advantage of alternative power sources because they provide a more flexible system, useable in multiple environments.” *Id.* (citing Ex. 1002 ¶ 241; Ex. 1028, 4:27–33).

Patent Owner provides two arguments as to why one of ordinary skill in the art allegedly would not have sought to modify Parienti as proposed by Petitioner in the context of claim 11. *See* PO Resp. 48. First, Patent Owner argues that one of ordinary skill in the art “would not seek an AC power solution because Parienti uses a DC solar powered array designed for portable, outdoor use without needing to resort to any other power source” and one of ordinary skill in the art “would understand that an AC power source is not typically found outdoors.” *Id.* (citing Ex. 1005, 1:1–19).

We determine that the statements relied on by Petitioner provide a “rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), *cited with approval in KSR*, 550 U.S. at 418. Specifically, we are persuaded by Dr. Beaman’s discussion of the benefit of providing Parienti’s mattress with the option of an alternative power source (i.e., AC power) for the different environments where the mattress could be used, such as on a cloudy day. *See* Ex. 1002 ¶ 240, *cited at* Pet. 80–81. Moreover, the benefit underlying this reasoning is supported by the express disclosures of Hong, highlighted by Petitioner and Dr. Beaman. *See* Ex. 1028, 4:27–33 (“[I]ncorporat[ing] a dual alternating current and direct current power source . . . provides a power source easily obtainable to the person”), *cited at* Pet. 81; Ex. 1002 ¶ 241. Even assuming as correct Patent Owner’s assertion that “AC power source is not *typically* found outdoors” (PO Resp. 48 (emphasis added)),

Patent Owner does not dispute Petitioner’s assertion that, e.g., “a standard wall outlet” will be available in certain environments in which Parienti may be used. *See* Pet. 80–81 (citing Ex. 1002 ¶ 240); *see also* Ex. 1625 ¶ 106 (“While Parienti teaches a mattress primarily intended for outdoor use, [one of ordinary skill in the art] would have sought to modify Parienti to accommodate AC power so the mattress could be used indoors, as well, to increase the versatility of the product.”), *cited at* Reply 18. This finding is also supported by Dr. Stevick’s assertion that Parienti’s solar cells 1 (i.e., the DC power source) “underpower” the pump, which Dr. Beaman concludes would have led one of ordinary skill in the art to have looked for an alternative power source. *See* Reply 18 (citing Ex. 2029 ¶ 72); *see also* Ex. 1625 ¶ 107 (discussing same).

Second, Patent Owner argues that one of ordinary skill in the art “would appreciate that connection to an AC power source . . . would raise safety issues such as electric shock for a mattress intended to be used outdoors, such as Parienti (for example, AC power airbeds such as those sold by Petitioner[]) come with warnings against such outdoor use (*see, e.g.,* Ex. 2635)).” PO Resp. 48 (discussing Ex. 2029 ¶ 101); *see* Sur-reply 16.

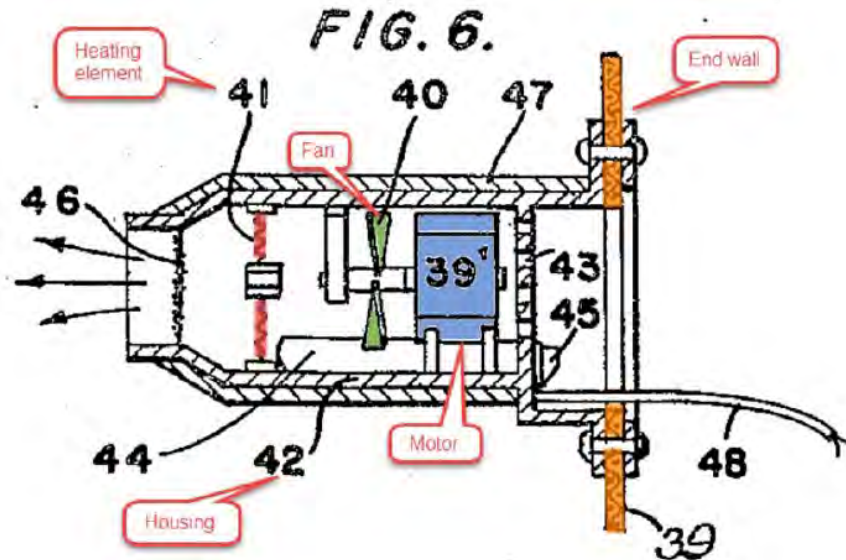
Having reviewed the testimony of Dr. Stevick and Dr. Beaman, as well as the related evidence, we agree with Petitioner that the record does not support that one of ordinary skill in the art would have viewed the proposed modification in the context of claim 11 as undermined by “electric shock” concerns. *See* Reply 18 (arguing that Patent Owner’s “reference to ‘electric shock’ concerns are unpersuasive and ignores prior art teachings of inflatable devices for outdoor use in connection with AC powered designs” (citing Ex. 1625 ¶¶ 108–110)).

Dr. Stevick highlights that one of Petitioner’s inflatable mattresses, which uses AC power, includes in its manual a warning that the product is “[f]or indoor household use only.” Ex. 2635, *cited at* Ex. 2029 ¶ 101; PO Resp. 48. But neither Patent Owner nor Dr. Stevick has adequately linked this warning to the use of AC power in one device to the use of AC power in any device that is outdoors and exposed to the elements. *See* Ex. 2029 ¶ 101; PO Resp. 48; *see also* Ex. 1625 ¶ 109 (stating that Dr. Stevick provides no explanation as to why an AC and DC powered design would impose a greater risk of shock than Parienti’s DC powered design). We determine, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that claim 11 would have been obvious based on Parienti and Goldsmith.

4. *Dependent Claim 12*

Claim 12 recites: “The inflatable product as claimed in claim 1, wherein the pump body is located in the inflatable body.” Ex. 1001, 8:26–27. Petitioner contends that Goldsmith teaches recessing a pump into a mattress such that the pump body is “located in” the mattress. Pet. 82–84. Petitioner explains that Goldsmith discloses an external blower that supplies air to a mattress to vary the temperature of the inner compartments of the mattress. Pet. 82. Petitioner continues that Goldsmith also discloses, as an *alternative* configuration, that the pump body could be built into the exterior wall and located in the mattress. Pet. 83 (referencing the embodiment of Goldsmith’s Figure 6; Ex. 1002 ¶ 246).

We reproduce Petitioner’s annotated version of Goldsmith’s Figure 6, below:



Pet. 83. Figure 6 depicts a “sectional view showing a modified form of air distributing chamber which forms a part of th[e] invention.” Ex. 1007, 2:30–32. In the annotated version of Figure 6 here, Petitioner added (1) orange highlighting and a text box identifying element 39 as “Endwall,” (2) blue highlighting and a text box identifying element 39’ as “Motor,” (3) green highlighting and a text box identifying element 40 as “Fan,” (4) red highlighting and a text box identifying element 41 as “Heating element,” and (5) a text box identifying element 42 as “Housing.” Pet. 83.

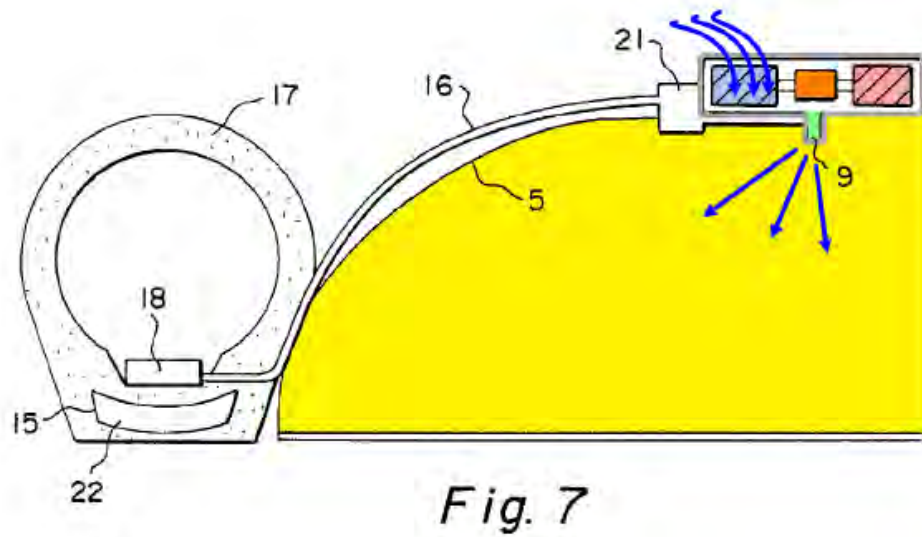
Petitioner contends that a person having ordinary skill in the art would have modified Parienti to include a recessed electric motor housing based on the teachings of Goldsmith such that the pump body is “located in” the inflatable body for the same reasons discussed above as to the “built into” limitation. Pet. 84 (citing Pet. 73–78; Ex. 1002 ¶ 231–235, 248); *compare*

Ex. 1007, Fig. 1 (depicting a blower on the floor and hose to the mattress), *with* Fig. 6 (showing blower inside mattress).

We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that the combination of Parienti and Goldsmith satisfies the additional limitations of this claim. Patent Owner does not present arguments for this claim. Based on the complete record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 12 would have been obvious based on Parienti and Goldsmith.

5. Dependent Claim 13

Claim 13 recites: “The inflatable product as claimed in claim 12, wherein the air outlet is located in the inflatable body.” Ex. 1001, 8:28–29. Petitioner states that pipe 9 in Parienti (the identified “air outlet”) is located in the inflatable body (mattress 5), and, if not, it would have been in the context of the modified device of Parienti as modified by Goldsmith. *See* Pet. 84–87. Petitioner states that pipe 9 is located in the inflatable body because “pipe (9) must draw air in from outside the housing, feed air through external wall (5), and into the inflatable body, as shown below in Figure 7”:



Pet. 85–86 (citing Ex. 1002 ¶ 251). Figure 7 is a cross-sectional view of one end of a solar-powered mattress. See Ex. 1005, 1:50–52. In the annotated version of Figure 7 above, Petitioner added (1) blue and pink highlighting to turbine 4, (2) orange highlighting to motor 2, (3) green highlighting to pipe 9, (4) blue lines showing airflow due to the turbine’s operation, and (5) yellow highlighting inside mattress 5. Pet. 85–86.

In the alternative, Petitioner states that “to the extent Parienti’s pipe (9) is not located in the inflatable body, it would have been obvious to recess the housing into the inflatable body.” Pet. 87 (citing Pet. 73–78; Ex. 1002 ¶¶ 231–235). According to Petitioner, “[w]hen Parienti’s housing is recessed into the inflatable body, the air outlet will be located in the inflatable body.” *Id.* (citing Ex. 1002 ¶ 253).

We find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that the combination of Parienti and Goldsmith satisfies the additional limitations of this claim. Patent Owner does not present arguments for this claim. Based on the complete record, we determine that Petitioner has demonstrated by a

preponderance of the evidence that claim 13 would have been obvious based on Parienti and Goldsmith.

6. Independent Claim 14

Petitioner relies on its analysis of claim 1 for its position that claim 14 is unpatentable. Pet. 87. Petitioner correctly states that claim 14 is similar to claim 1 except it omits the final limitation of claim 1. *See id.; compare* Ex. 1001, 7:28–36, *with id.* at 8:30–37. Patent Owner does not separately address claim 14. *See* PO Resp. 23–48; Sur-reply 1–16. For the reasons discussed above in connection with our analysis of claim 1, we determine, based on the complete record, that Petitioner demonstrates, by a preponderance of the evidence, that claim 14 would have been obvious based on Parienti and Goldsmith.

D. Asserted Obviousness of Claim 5 Based on Parienti, Goldsmith, and Walker

Petitioner contends that the combination of Parienti, Goldsmith, and Walker renders obvious claim 5. Pet. 15. Petitioner identifies certain passages in the cited references and explains the significance of each passage with respect to the corresponding claim limitation. Pet. 87–89. Petitioner also articulates reasons to modify Parienti/Goldsmith based on Walker. Pet. 88–89.

Claim 5 recites: “The inflatable product as claimed in claim 1, further comprising a rectifier via which the electric pump is electrically connected to an electric power.” Ex. 1001, 8:7–9. Petitioner states that “[n]either Parienti nor Goldsmith explicitly discloses connecting the pump via a rectifier to an electric power” but that “connecting an electric pump via a rectifier to an electric power would have been obvious to [one of ordinary

skill in the art], especially in further view of Walker.” Pet. 87 (citing Ex. 1002 ¶ 257).

According to Petitioner, “[i]t would have been obvious to [one of ordinary skill in the art] to combine Goldsmith’s teaching of an AC power source for the electric pump to provide Parienti’s mattress with an alternative power source” in order “to provide an easily obtainable source of power, in whatever type of environment the user may be located.” Pet. 88 (citing Ex. 1002 ¶¶ 240–242, 258). Petitioner adds that “it would have been obvious to use a rectifier to convert an AC power source to DC, to supply DC power” because one of ordinary skill in the art “would have known [that] a rectifier converts an AC power source to DC power.” *Id.* According to Petitioner, “[g]iven that Parienti’s solar system is DC (which photovoltaic cells supply), it would have been obvious to use a rectifier to convert an alternative, AC power source to DC to remain compatible with Parienti’s photovoltaic cells” as “[t]his would provide the advantage of adding the flexibility of an alternative power source (AC) while keeping the implementation simple.” *Id.* (citing Ex. 1002 ¶ 259). Petitioner states that “Walker disclosed a rectifier for converting AC power to DC power, and it would have been obvious to one of ordinary skill in the art to use a rectifier to convert an alternative AC power source to DC power source to provide compatible power, regardless of the source.” *Id.* (citing Pet. 47–51, 63–66; Ex. 1002 ¶¶ 158–163, 200–205).

For claim 5, Patent Owner relies on the same arguments discussed above as to claim 11 as to why one of ordinary skill in the art would allegedly not have modified Parienti to use AC power. *See* PO Resp. 47–48. For the same reasons discussed above, Petitioner has adequately shown

support for the proposed modification here. *See* § II.C.3. Thus, we find, based on the complete record, that Petitioner has demonstrated by a preponderance of the evidence that the combination of Parienti, Goldsmith, and Walker satisfies the additional limitations of this claim and that claim 5 would have been obvious based on Parienti, Goldsmith, and Walker.

III. CONCLUSION

After considering the complete record, we find that Petitioner has demonstrated, by a preponderance of the evidence, that *all* of the Challenged Claims are unpatentable.²⁶

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Final Written Decision in this proceeding is hereby modified to include this Remand Decision, but is not otherwise modified on remand;

FURTHER ORDERED that claims 1, 7, and 11–14 *are shown to be unpatentable* under 35 U.S.C. § 103 over Parienti and Goldsmith;

FURTHER ORDERED that claim 5 *is shown to be unpatentable* under 35 U.S.C. § 103 over Parienti, Goldsmith, and Walker;

²⁶ 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).

CONFIDENTIAL MATERIAL REDACTED

IPR2018-00859

Patent 9,211,018 B2

FURTHER ORDERED that the parties shall file, within 10 days of entry of this Decision, a joint motion to seal this Decision, and shall provide, along with the joint motion, an exhibit with a proposed redacted public version of this Decision; 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.

In summary, based on the Final Written Decision and this Remand Decision:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 7, 11-14	102(e)	Chaffee		1, 7, 11-14
5	103	Chaffee, Walker		5
1, 7, 12-14	102(b)	Chan		1, 7, 12-14
5, 11	103	Chan, Walker		5, 11
1, 7, 11-14	103	Parienti, Goldsmith	1, 7, 11-14	
5	103	Parienti, Goldsmith, Walker	5	
1, 7, 11-14	103	Chaffee		1, 7, 11-14
Overall Outcome			1, 5, 7, 11-14	

FOR PETITIONER:

R. Trevor Carter
Andrew M. McCoy
FAEGRE BAKER DANIELS LLP
Trevor.Carter@faegrebd.com
Andrew.McCoy.PTAB@faegrebd.com

John S. Artz
Steven A. Caloiaro (*pro hac vice*)
DICKINSON WRIGHT PLLC
jsartz@dickinsonwright.com
scaloiaro@dickinsonwright.com

David M. Tennant
Allen Wang
WHITE & CASE LLP
dtennant@whitecase.com
allen.wang@whitecase.com

FOR PATENT OWNER:

Timothy E. Bianchi
Thomas C. Reynolds
Domenico Ippolito
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
tbianchi@slwip.com
treynolds@slwip.com
dippolito@slwip.com
SLW-PTAB@slwip.com

Ronald Wielkopolski
Amadou K. Diaw
Robert M. Harkins
RUYAKCHERIAN LLP
ronw@ruyakcherian.com
amadoukd@ruyakcherian.com
bobh@ruyakcherian.com
TWW_Intex_IPRs@ruyakcherian.com