

NOTE: This disposition is nonprecedential.

**United States Court of Appeals  
for the Federal Circuit**

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**INTEX RECREATION CORP.,**  
*Appellant*

v.

**TEAM WORLDWIDE CORPORATION,**  
*Appellee*

**ANDREW HIRSHFELD, PERFORMING THE  
FUNCTIONS AND DUTIES OF THE UNDER  
SECRETARY OF COMMERCE FOR  
INTELLECTUAL PROPERTY AND DIRECTOR OF  
THE UNITED STATES PATENT AND TRADEMARK  
OFFICE,**  
*Intervenor*

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2020-1144

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Appeal from the United States Patent and Trademark  
Office, Patent Trial and Appeal Board in No. IPR2018-  
00859.

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Decided: June 21, 2021

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R. TREVOR CARTER, Faegre Drinker Biddle & Reath  
LLP, Indianapolis, IN, argued for appellant. Also

represented by REID E. DODGE, ANDREW M. MCCOY.

ROBERT M. HARKINS, JR., RuyakCherian LLP, Berkeley, CA, argued for appellee. Also represented by KORULA T. CHERIAN; TIMOTHY E. BIANCHI, Schwegman Lundberg & Woessner, PA, Minneapolis, MN.

MOLLY R. SILFEN, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA, argued for intervenor. Also represented by DANIEL KAZHDAN, THOMAS W. KRAUSE, FARHEENA YASMEEN RASHEED.

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Before NEWMAN, REYNA, and STOLL\*, *Circuit Judges*.

REYNA, *Circuit Judge*.

Intex Recreation Corp. appeals the Patent Trial and Appeal Board's decision that none of the challenged claims of U.S. Patent No. 9,211,018 are unpatentable for obviousness. Intex challenges the Board's construction of "inflatable body" as requiring substantial airtightness, as well as the Board's conclusion of non-obviousness. For the reasons explained below, we affirm the Board's construction of the term "inflatable body" and vacate the Board's conclusion of non-obviousness.

#### BACKGROUND

##### The '018 patent

Team Worldwide Corp. owns U.S. Patent No. 9,211,018 ("018 patent"), titled "Inflatable Airbed Provided with Electric Pump Having Pump Body Recessed into the Inflatable Airbed." *See* '018 patent col. 1 ll. 1–3. The '018 patent

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\* Judge Stoll did not participate in deciding this case, and instead it was decided by the remaining judges in accordance with Fed. Cir. Rule 47.11.

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was filed on January 10, 2005, and it stems from a series of applications beginning with U.S. Patent Application No. 09/542,477, filed on April 4, 2000. For purposes of the claims at issue in this case, Team Worldwide claims priority to U.S. Patent Application No. 09/738,331, filed on December 18, 2000.

The '018 patent is directed to an inflatable airbed with an electric pump that is “wholly or partially recessed into the inflatable body.” *Id.* at abstract. The patent recites two independent claims 1 and 14, which are identical in all respects material to this appeal.<sup>1</sup> Claim 1 is representative recites:

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.

'018 patent col. 7 ll. 27–36.

On March 30, 2018, Intex Recreation Corp. (“Intex”) filed a petition for inter partes review (“IPR”) of the '018 patent. J.A. 100, 168–252.

#### Grounds 3 and 4

In its petition, Intex asserted ground 3, contending that claims 1, 7, and 12–14 were anticipated by U.S. Patent No. 5,564,963 (“Chan”), and ground 4, contending that

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<sup>1</sup> Claim 14 is identical to claim 1 except that it omits claim 1’s final “wherein” clause. J.A. 95.

claims 5 and 11 would have been obvious to a person of ordinary skill in the art (“POSA”) based on Chan in view of U.S. Patent No. 4,890,344 (“Walker”).

Chan was filed on September 2, 1993, issued on October 15, 1996, and is titled “Air-Cushioned Toy.” J.A. 2799. The toy includes a platform that sits on top of a pillow. *Id.* According to Chan, the toy uses a motorized fan to draw air into the pillow, which in turn expels the air through perforations on the bottom surface of the pillow, enabling a child lying on it to “hover.” *Id.*

Walker issued on January 2, 1990, and is titled “Air Control System for Air Bed.” J.A. 2807. Walker discloses, among other things, an air supply and control apparatus having an air pump for purposes of supplying pressurized air to an air mattress. *Id.*

In the context of grounds 3 and 4, the parties disputed the meaning of the claim term, “inflatable body.” *See* J.A. 29–30. In its decision instituting an IPR, the Board preliminarily construed the phrase to mean “a substantially airtight structure that expands when filled with air or other gases,” as proposed by Team Worldwide. J.A. 21. During the IPR, Intex argued that the Board’s construction was unduly narrow because it included the “substantial airtightness” requirement. J.A. 21–22. Team Worldwide responded that the prosecution history supports the limitation. J.A. 22. Specifically, Team Worldwide contended that, during prosecution, the applicant took the position that the claims did not cover bodies that did not expand because they were not substantially airtight. *Id.* Intex responded that the applicant’s statements were ambiguous and failed to rise to the level of a clear and unmistakable disavowal of claim scope.

In its Final Written Decision issued on October 21, 2019, the Board agreed with Team Worldwide and readopted the construction that “inflatable body” means “a substantially airtight structure that expands when filled

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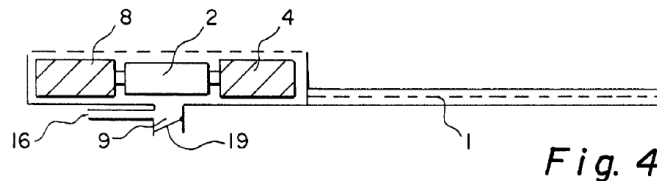
with air or other gases.” J.A. 23–24. Subsequently, when addressing grounds 3 and 4, the Board found that those grounds failed to render the challenged claims unpatentable because Chan did not disclose a substantially airtight inflatable body as required by the construed claims. J.A. 29–30.

#### Grounds 5 and 6

Intex also asserted ground 5, contending that claims 1, 7, and 11–14 would have been obvious to a POSA based on U.S. Patent No. 6,018,960 (“Parienti”) in view of U.S. Patent No. 2,493,067 (“Goldsmith”), and ground 6, contending that claim 5 should have been obvious based on Parienti in view of Goldsmith and Walker. J.A. 7.

Parienti was filed in France pursuant to the Patent Cooperation Treaty (“PCT”) on July 22, 1996. J.A. 2776. The PCT application published on February 13, 1997, and entered the U.S. national stage under 35 U.S.C. § 371 on March 20, 1998. The application issued as U.S. Patent No. 6,018,960 on February 1, 2000, about ten months before Team Worldwide’s claimed priority date.

Parienti discloses an “automatically inflatable, deflatable and foldable” mattress whose top surface is attached to a solar-powered pump device. Figure 4 depicts a cross-section of the pump device. *Id.*



J.A. 2778. As shown in Figure 4, the solar-powered pump device that is attached to the top of the air mattress includes a protective grid for intaking air (8), a motor (2), a turbine (4), a voltaic cell array (1), and a pipe (9) with a

valve (19) to guide the air into and out of the air mattress. J.A. 2780–81.

Goldsmith was filed in 1945 and issued in 1950. It discloses an inner spring mattress that includes an electrically operated blower unit that blows temperature-controlled air into the mattress and thereby regulates the mattress's temperature. *See, e.g.*, J.A. 2797 at col. 1 ll. 4–12. In one embodiment, the blower unit is mounted on a stand located outside the mattress and blows air into the mattress via a tube. J.A. 2796; J.A. 2798 at col. 3 ll. 1–10. In another embodiment, pertinent to this appeal, the blower unit is mounted to the mattress wall, and all but one surface of the blower resides within the mattress. Goldsmith explains that, in this embodiment, “no outside unit is necessary.” J.A. 2796; J.A. 2797 at col. 1 ll. 41–44; J.A. 2798 at col. 4 ll. 1–15.

Intex argued in its petition that the combination of Parienti and Goldsmith satisfied the following claim language for purposes of § 103: “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.” J.A. 247. Intex contended that, although Parienti does not clearly disclose recessing the body portion of the pump device into the inflatable body, it would have been obvious for a POSA to do so in view of Goldsmith. J.A. 248. Intex pointed to Goldsmith's embodiment having an air blower mounted to the mattress wall, arranged to blow air into the mattress and leaving only a surface of the blower exposed to the outside. J.A. 249–51.

Intex argued that a POSA would have been motivated by, among other things, a desire for spatial efficiency to combine Parienti with Goldsmith and thereby arrive at the claimed inventions. J.A. 251, 1819–20. According to Intex, it was well known in the art as of December 18, 2000, that a more compact design would reduce the opportunity for a

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pump's components "to impact or interfere with the use of" an airbed. J.A. 251. In support, Intex cited U.S. Patent No. 7,039,972 ("Chaffee"), filed on May 17, 2001—about five months after Team Worldwide's claimed priority date—which disclosed an air mattress with a "recessed" pump. *Id.* (citing Chaffee col. 4 ll. 50–56 (J.A. 2792)). Intex also pointed to U.S. Patent No. 5,529,377 ("Miller"), issued in 1996, which disclosed an air cell module for an automotive seat and taught that disposing an air pump inside the air cell "provide[d] a compact design to facilitate handling and shipment and to reduce space requirements in the seat." J.A. 251; Miller col. 2 ll. 40–52 (J.A. 3013).

Intex also relied on the opinions of its expert, Dr. Beaman, regarding the spatial efficiency motivation. *See* J.A. 251 (citing Beaman Decl. ¶¶ 61–70 (J.A. 1824–28), ¶ 232 (J.A. 1916)). For example, Dr. Beaman reiterated Goldsmith's teaching that, when the blower is recessed into the mattress, "no outside unit is necessary." J.A. 1826 (citing Goldsmith fig. 6, col. 4 ll. 1–15). Dr. Beaman also pointed to U.S. Patent No. 388,037 ("Hargin"), filed in 1887 and issued in 1888, which disclosed a wooden, manual pump that was "wholly inclosed within the covering of the air mattress." J.A. 1825; Hargin p. 1 ll. 53–58 (J.A. 2884). Hargin later explained, as Dr. Beaman pointed out, that the "pump must be wholly inclosed within the air-tight covering of the mattress to protect it from accident, injury, or separation when plunged into water." J.A. 1820; Hargin p. 2 ll. 129–31 (J.A. 2885).

Dr. Beaman identified a host of various inflatable products designed throughout the twentieth century that included built-in pumps. J.A. 1825 at ¶ 64 n.8. Dr. Beaman cited, among others, U.S. Patent No. 4,702,235 ("Hong"), a 1987 patent on an inflatable lumbar brace; U.S. Patent No. 4,862,533 ("Adams"), a 1989 patent on an air mattress combined with a sleeping bag; U.S. Patent No. 5,467,543 ("Fink"), a 1995 patent on an inflatable decoy automotive passenger; and U.S. Patent No. 6,287,095 ("Saputo"), a

2001 patent filed in 1999 on an “internal pump for inflatables.” *Id.* Based on the cited references, Dr. Beaman opined that inventors going back to at least 1888 and throughout the twentieth century “recognize[d] the advantages of designing pumps, both motorized and manual, built into the body of the inflatable product.” J.A. 1825.

On January 29, 2019, Team Worldwide filed its Patent Owner’s Response. Team Worldwide argued that a POSA would not modify Parenti by recessing the pump portion because doing so “would not yield an appreciable improvement.” J.A. 712. According to Team Worldwide, Parenti’s mattress is better unmodified because, among other things, leaving the pump unrecessed would “encourage a user to not lay over [it].” J.A. 716. Team Worldwide further contended that the additional references cited by Intex do not support the spatial efficiency motivation to combine because, for example, they involve pumps that are “already inconspicuous without modification” or they involved manual pumps rather than electric pumps such as those disclosed in Parenti. J.A. 718–19.

In its Final Written Decision, the Board concluded that claims 1, 7, and 11–14 were not proven unpatentable under § 103 based on Parenti and Goldsmith. J.A. 53. The Board focused on whether a POSA would have made Intex’s proposed modification to Parenti in light of Goldsmith, namely moving the pump body slightly so that it is not merely attached to the air mattress’s surface, but at least partially recessed within it. J.A. 41. According to the Board, Intex did not “provide persuasive factual underpinnings for its reasoning.” *Id.* The Board rejected Chaffee on the grounds that it was not prior art. J.A. 43. The Board also gave Miller and Goldsmith minimal weight on the grounds that they dispose the pump entirely within the inflatable objection rather than only partially within it. J.A. 44–45. Elsewhere, however, the Board acknowledged that the claim language was so broad that it did “not require[]” the prior art to specifically disclose only partially



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recessing the pump. J.A. 50 (“[A]lthough *not required*, neither Parienti nor Goldsmith discloses the proposed modification, as Goldsmith discloses a configuration with the pump body disposed well inside of the bed’s mattress, rather than only partially recessed.” (emphasis added)). The Board also dismissed the “numerous other prior art’ references” cited by Intex and Dr. Beaman as failing to support Intex’s specific proposed modification on the grounds that they are factually distinguishable in certain respects. *See* J.A. 46. Based solely on its determination as to claims 1, 4, and 7–11, the Board further determined that Intex failed to prove claim 5 obvious in light of Parienti, Goldsmith and Walker. J.A. 54–55.

Intex appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4).

#### STANDARD OF REVIEW

We review claim construction based on intrinsic evidence de novo. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). We review a Board’s ultimate legal determination on obviousness de novo and its underlying factual findings for substantial evidence. *Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1337 (Fed. Cir. 2020).

#### DISCUSSION

##### Construction of “Inflatable Body” for Purposes of Grounds 3 and 4<sup>2</sup>

The claims and specification of the ’018 patent lack any limiting definition of the term, “inflatable body.” Team

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<sup>2</sup> Because Intex filed its petition on March 30, 2018, the Board applied the broadest reasonable interpretation claim construction standard in effect at that time. J.A. 18–19. We therefore apply the same standard. *See, e.g., Ethicon LLC v. Intuitive Surgical, Inc.*, No. 2020-1600, 2021 WL 960766, at \*3 n.4 (Fed. Cir. Mar. 15, 2021).

Worldwide points, however, to the prosecution history to argue that “inflatable body” is limited by the applicant’s assertions to the examiner during prosecution.

We have held that a statement during prosecution limits a claim where it constitutes a clear and unmistakable disavowal of claim scope. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1370 (Fed. Cir. 2012); *see also Braintree Lab’ys, Inc. v. Novel Lab’ys, Inc.*, 749 F.3d 1349, 1355 (Fed. Cir. 2014).

In an office action dated August 22, 2006, the examiner rejected certain claims, stating that U.S. Patent No. 5,068,933 (“Sexton”) met the claim limitation, “inflatable body.” J.A. 2588. The applicant responded arguing that Sexton failed to meet that limitation because the pillow case cited “is expressly disclosed not to be substantially airtight. Consequently, the cloth pillow case of Sexton would not in and of itself expand when filled with air.” J.A. 2577. The applicant further contended, “[F]or the combined structure to be an inflatable body, it must itself meet the criterion of an inflatable body, i.e., the combined structure taken as a whole must be substantially airtight and expand when filled with air or other gas.” *Id.*

Intex argues that the Board erred in finding the applicant’s assertions to the examiner limited the claim scope. *See* Appellant’s Br. 27–28. Specifically, Intex argues that the applicant, in distinguishing Sexton, focused primarily on whether or not Sexton’s pillow case expands and fills with gas. According to Intex, the applicant never distinguished Sexton *solely* on the ground that Sexton’s pillow case lets air escape.

We conclude the applicant’s statement was a clear and unmistakable disavowal of claim scope that limits the pertinent claims by defining the claim term, “inflatable body.” We have held that an applicant’s use of the term, “i.e.,” in a definitional way with respect to a claim term may limit the claim scope. *Rembrandt Wireless Techs., LP v.*

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*Samsung Elecs. Co.*, 853 F.3d 1370, 1376–77 (Fed. Cir. 2017) (holding that the applicant’s use of “i.e.” to define the “different types” claim language during prosecution limited the claim scope); *see also Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) (“[U]se of ‘i.e.’ signals an intent to define the word to which it refers.”). “Whether a statement to the PTO that includes ‘i.e.’ constitutes a clear and unmistakable disavowal of claim scope depends on the context.” *Braintree*, 749 F.3d at 1355. Here, the applicant expressly set forth the “criterion,” followed by the term, “i.e.,” for an “inflatable body”: it must be “substantially airtight and expand when filled with air or other gas.” J.A. 2577. The examiner accepted that definition and allowed the patent. Under these circumstances, we affirm the Board’s construction. On this basis, we affirm the Board’s determination that Chan failed to disclose an “inflatable body.”

#### Obviousness Based on Grounds 5 and 6

Section 103 provides that a patent claim is unpatentable where the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious to a POSA. 35 U.S.C. § 103. In *Graham v. John Deere Co.*, the Supreme Court enumerated four factors for determining obviousness: the scope and content of the prior art, the differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and objective indicia of non-obviousness. 383 U.S. 1, 17–18 (1966). In *KSR International Co. v. Teleflex, Inc.*, the Court clarified that the proper approach is an “expansive and flexible” one and that the teaching, suggestion, or motivation test is not a “rigid and mandatory formula,” but a “[h]elpful insight[].” 550 U.S. 398, 415, 418–19 (2007). The Court further explained that, “[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. *Id.* at 420.

Intex argues that the Board erred in determining that it failed to prove claims 1, 7, and 11–14 obvious. Intex points out that the claim language at issue requires that the “pump body” must be “*wholly or partially* recessed.” See, e.g., Appellant’s Br. 38 (emphasis added). According to Intex, the obviousness question at hand is therefore whether a POSA would have found it obvious to modify Parienti’s pump so that it is at least partially embedded into the mattress body rather than merely attached to the outside surface. See Appellant’s Br. 36–37. Intex further points to the “volumes of prior art,” including Goldsmith and others throughout the 1900s, that discuss recessed pump designs. *Id.* at 37. According to Intex, “[T]here should have been no question that a POSA, using her creativity and common sense,” would have arrived at the claimed inventions. *Id.* at 42. Intex contends that the Board’s analysis was “laser-focused” on the reasoning that the prior art’s repeated disclosure of *wholly*-recessed pumps detracted from Intex’s proposed modification in the form of a *partially*-recessed pump. *Id.* at 45. We agree.

We conclude that the Board erred in determining that Intex failed to prove claims 1, 7, and 11–14 obvious. The Board misapplied the obviousness standard, and misapprehended Intex’s argument, when it fixated on whether the prior art literally disclosed Intex’s theory of modifying Parienti only slightly by taking the pump attached to the outside of the mattress and recessing it partially within the mattress. 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. This showing, together with Intex’s showing that numerous references since the late 1800s illustrated prior artisans’ intuitive desire to recess pumps to save space, satisfied Intex’s burden. The Board erred in concluding to the contrary.

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Finally, we note that the Board declined to conduct certain analyses on the grounds that they were not necessary in light of its determination. Specifically, the Board did not address Team Worldwide's evidence regarding objective indicia of non-obviousness, nor did it address whether claim 5 was obvious based on asserted ground 6. Because we hold that Intex satisfied its burden of proving obviousness, we remand for the Board to conduct further proceedings consistent with his opinion, including resolving these two issues that the Board declined to reach.

#### CONCLUSION

We have considered the parties' remaining arguments and find them unpersuasive. For the reasons set forth above, we affirm the Board's determination that grounds 3 and 4 fail to render the challenged claims unpatentable. We further vacate the Board's determination that claims 1, 5, 7, and 11–14 are not unpatentable based on grounds 5 and 6, and we remand for further proceedings consistent with this opinion.

#### **AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED**

#### COSTS

No costs.