

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PACIFIC SURF DESIGNS, INC.,
Petitioner,

v.

SURF WAVES, LTD.,
Patent Owner.

Case IPR2016-01454
Patent 8,088,016 B2

Before PHILLIP J. KAUFFMAN, BEVERLY M. BUNTING, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Petitioner, Pacific Surf Designs, Inc., challenges all claims of U.S. Patent No. 8,088,016 (Ex. 1001, “the ’016 patent”), claims 1–20 (*see* Petition (Paper 1, “Pet.”)). Patent Owner, Surf Waves, Ltd., did not file a Preliminary Response. We instituted review of all challenged claims. Paper 9 (“Inst.” or “Institution Decision”). Patent Owner filed a Response (Paper 13, “PO Resp.”) and Petitioner filed a Reply (Paper 16, “Pet. Reply”). Patent Owner filed a Motion to Exclude (Paper 21), which we address below. We held a hearing on November 8, 2017, and a transcript of the hearing is included in the record. Paper 30 (“Tr.”).

This a final written decision as to the patentability of claims for which *inter partes* review is instituted. For the reasons discussed below, we determine that Petitioner has proven by a preponderance of the evidence claims 1–5 and 7–20 are unpatentable but has not proven by a preponderance of the evidence that claim 6 is unpatentable.

A. RELATED MATTERS

The parties identify the following pending judicial matter as relating to the ’016 patent: *Flowrider Surf, Ltd. v. Pacific Surf Designs, Inc.*, Case No. 15cv1879 (S.D. Cal.). Pet. 1; Paper 5, 2.

B. THE ’016 PATENT

The ’016 patent is titled “Half-Pipe Water Ride,” was filed April 21, 2009, issued January 3, 2012, and claims priority to a provisional application filed April 21, 2008. Ex. 1001, [54], [22], [45], 1:5–8. The ’016 patent describes a water ride in which water flows from a water-delivery section

through an activity section and to a dewatering section. *Id.* at 1:23–37. The activity section includes curved sidewalls on opposite sides of a middle section of the activity section. *Id.* Figure 1 of the '016 patent is reproduced below:

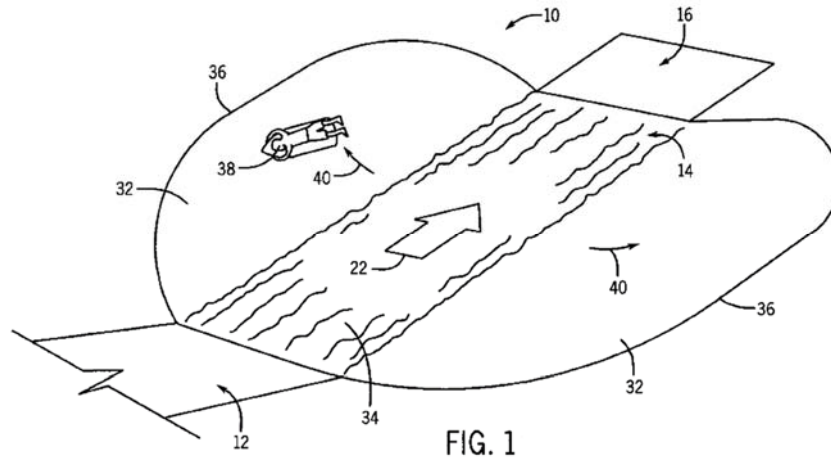


Figure 1 illustrates an embodiment of the half-pipe water ride with water-delivery section 12, activity section 14, and dewatering section 16; activity section 14 includes middle section 34 and sidewalls 23. *Id.* at Fig. 1, 1:41–42, 2:42–62, 3:22–24. Water from the dewatering section is returned to the water-delivery section through a water-retrieval section, as depicted in the embodiment of Figure 5. Figure 5 is reproduced below:

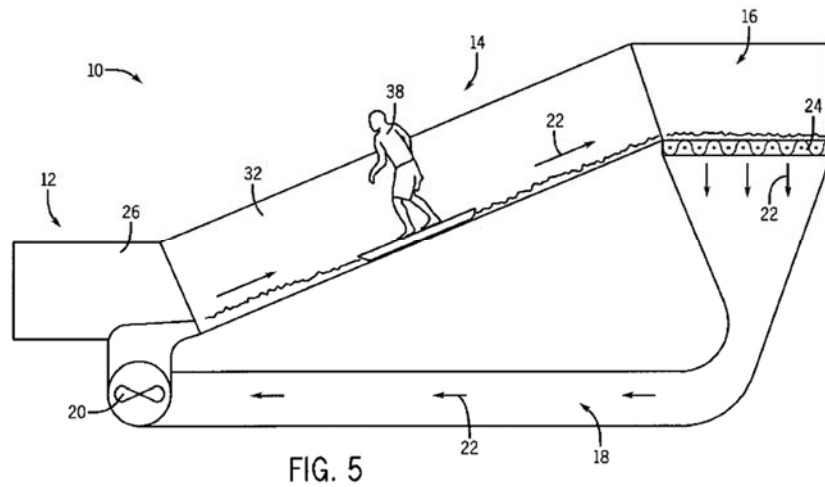


Figure 5 illustrates a cross-sectional view with pump 20 circulating water through a nozzle assembly and into the ride as described above. *Id.* at 1:49–50, 2:46–48, 2:58–62, 2:67–3:2.

C. CHALLENGED CLAIMS

The only two independent claims of the '016 patent, 1 and 20 (reproduced below), are illustrative of the claimed subject matter:

1. A water ride for use by a rider, the water ride comprising:
 - an activity section including
 - a substantially flat middle section,
 - a first curved sidewall extending substantially upwardly from an edge of the middle section, and
 - a second curved sidewall extending substantially upwardly from another edge of the middle section opposite the first curved side;
 - a water delivery section coupled to a side of the middle section; and
 - the water delivery section configured and arranged to deliver water up the middle section in a direction

substantially opposite the rider's direction of travel
along the middle section;

a dewatering section coupled to another side of the middle
section opposite the water delivery section and located
at an elevation higher than the water delivery section;
and

a rider exit located adjacent the water delivery section.

Id. at 4:58–5:8.

20. A water ride for use by a rider, the water ride comprising:

an activity section including

a substantially flat, inclined middle section,

a first curved sidewall extending substantially upwardly
from an edge of the middle section, and

a second curved sidewall extending substantially
upwardly from another edge of the middle section
opposite the first curved side;

a water delivery section coupled to a side of the middle
section;

the water delivery section including at least one nozzle
configured and arranged to deliver water up the entire
length of the middle section;

a dewatering section coupled to another side of the middle
section opposite the water delivery section and located
at an elevation higher than the water delivery section;
and

a rider exit located adjacent the water delivery section.

Id. at 6:19–36.

D. REVIEWED GROUNDS OF UNPATENTABILITY

Petitioner relies on the following references:

Exhibit	Reference
1003	U.S. Pat. No. 6,491,589 B1, iss. Dec. 10, 2002 (“Lochtefeld 589”)
1004	U.S. Pat. No. 5,738,590, iss. Apr. 14, 1998 (“Lochtefeld 590”)
1005	U.S. Pat. No. 6,676,530 B2, iss. Jan. 13, 2004 (“Lochtefeld 530”)

Petitioner presented certain grounds in the alternative. *E.g.*, Pet. 26 (“Even if the Board disagrees that the nozzle cover is a second exit, it would have been obvious to modify Lochtefeld 589 in view of itself to disclose the limitation.”), 50 (“To the extent the Board disagrees [that Lochtefeld 530 teaches curved sidewalls], however, using curved sidewalls was known as shown in Lochtefeld 590, and it would have been obvious to combine Lochtefeld 590 with Lochtefeld 530 to arrive at that limitation.”). To clearly identify the grounds on which we instituted, we exercised our discretion to recast the challenges presented in the Petition in view of the specific prior art and arguments actually relied upon for the challenged claims. Inst. 7–8; *see In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1273 (Fed. Cir. 2015) (“Nor does the IPR statute expressly limit the Board’s authority at the final decision stage to the grounds alleged in the IPR petition.”), *aff’d*, *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016); *see also SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1312–13 (Fed. Cir. 2015) (noting that governing statutory provisions do not limit the Board’s authority to proceed with AIA trial proceedings on only the specific statutory grounds alleged in the petition). Thus, we instituted on the following grounds of unpatentability (Inst. 31):¹

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 100 *et seq.* effective on March 16, 2013. Because the ’016

Reference(s)	Basis	Challenged Claims
Lochtefeld 589	§ 102(b)	1–6, 8, 9, 11, 12, 15–17, 19, and 20 ²
Lochtefeld 589	§ 103(a) ³	1–20
Lochtefeld 589 and Lochtefeld 590	§ 103(a)	1–20
Lochtefeld 530 ⁴	§ 102(b)	1–5, 11, 15, 16, 18, and 20
Lochtefeld 530 and Lochtefeld 590	§ 103(a)	1–20

E. LEGAL PRINCIPLES

In *inter partes* reviews, petitioners bear the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must support its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e);

Patent issued from an application filed before March 16, 2013, we apply the pre-AIA versions of the statutory bases for unpatentability.

² Petitioner asserts that claims 1–20 are “Anticipated Or Rendered Obvious By Lochtefeld 589” but asserts that Lochtefeld 589 teaches the limitations of only the claims listed here. Pet. 20 (emphasis omitted).

³ Although the Petition presents single-reference obviousness arguments intertwined with anticipation arguments, we consider them two separate grounds and evaluate them separately. See *SightSound*, 809 F.3d at 1312–13.

⁴ Although Petitioner presents as a single ground “Lochtefeld 530 In View Of Lochtefeld 590,” Petitioner argues that Lochtefeld 530 alone teaches the limitations of claims 1–5, 11, 15, 16, 18, and 20 (Pet. 49–59) (emphasis omitted), and we thus also consider the ground based on anticipation by Lochtefeld 530 alone. See *SightSound*, 809 F.3d at 1312–13.

37 C.F.R. § 42.1(d). Accordingly, all of our findings and conclusions are based on a preponderance of the evidence.

1. Anticipation overview

A patent claim is unpatentable under 35 U.S.C. § 102 if “the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.”

Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed. Cir. 2000). “A single prior art reference may anticipate without disclosing a feature of the claimed invention if such feature is necessarily present, or inherent, in that reference.” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 958 (Fed. Cir. 2014) (citing *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003)). We analyze the grounds based on anticipation in accordance with the above-stated principles.

2. Obviousness overview

An invention is not patentable “if 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.” 35 U.S.C. § 103(a). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and, (4) where in evidence, so-called secondary considerations, including commercial success, long-felt but

unsolved needs, and failure of others.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of elements produced a predictable result weighs in the ultimate determination of obviousness. *KSR*, 550 U.S. at 416–17. We analyze the grounds based on obviousness in accordance with the above-stated principles.

II. DISCUSSION

A. CLAIM CONSTRUCTION

Before the Board, claims in an unexpired patent are interpreted according to their broadest-reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo*, 136 S. Ct. at 2144–46. Under that standard, we generally give a claim term its “ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). The specification may impose a specialized meaning, departing from the ordinary and customary meaning, by defining a term with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d

⁵ Patent Owner neither provided evidence supporting secondary considerations of nonobviousness nor argued that such considerations weigh against obviousness. Thus, we base our analysis on the other factual considerations discussed above.

1475, 1480 (Fed. Cir. 1994). Further, a party may prove “the existence of a ‘clear and unmistakable’ disclaimer” that narrowed a term’s definition in the prosecution history of a challenged patent. *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1063–64 (Fed. Cir. 2016) (quoting *Elbex Video, Ltd. v. Sensormatic Elecs. Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007)).

Petitioner proposed constructions for “opposite,” “coupled,” “middle section,” and “the first curved side” in the Petition, terms that each appear in all challenged claims. Pet. 17–20. We addressed those terms in the Institution Decision, noting that our constructions were consistent with those of the district court in the related litigation. Inst. 10–13; see Ex. 1013. We identified two additional terms potentially affecting our determinations regarding certain claims, and set forth preliminary constructions for those terms also. Inst. 14.

Having considered the evidence and arguments presented, we address the construction of “activity section,” “curved sidewall extending substantially upwardly from an edge of the middle section,” “the first curved side,” “additional water,” and “curved about an axis parallel to water flow.” For all other terms, we conclude no express claim construction is necessary for our unpatentability determinations. See *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

1. “activity section”

In its Response, Patent Owner seeks a construction of “activity section” limited to “a section of the water ride that a rider may traverse.”

PO Resp. 30 (citing Ex. 2001 ¶ 43).⁶ For support, Patent Owner relies on a passage in the Specification stating that “[o]nce in the activity section 14, the rider 38 can propel himself up onto the sidewalls 32.” Ex. 1001, 3:45–55; Tr. 38:3–20.

Petitioner argues that the proper construction should follow the district court, which construed the term as “section of the water ride including the middle section, the first curved sidewall, and the second curved sidewall.” Pet. Reply 23 (quoting Ex. 1013, 17). Petitioner notes that Patent Owner proposed that construction to the district court (*id.* (citing Ex. 1010)) and that Patent Owner’s expert testified in his deposition that he “didn’t have any problems with the [district court’s] claim construction” (*id.* (quoting Ex. 1014, 29:11–14)).

Although the district court construed “activity section” as Petitioner describes, it also construed “curved sidewall extending substantially upwardly from [an/another] edge of the middle section,” which is part of the activity section, as “upwardly curved wall that the rider may traverse extending from [an/another] edge of the middle section.” Ex. 1013, 12–14. That said, it does not appear that the district court specifically considered whether to include “that the rider may traverse” in its construction. *Id.* It did, however, identify the issue regarding “activity section” as whether that term should include Petitioner/Defendant’s “additional proposed phrase ‘on

⁶ At the hearing, Patent Owner argued that the Lochtefeld 530 lacks the claimed sidewall because: the sidewall is “not to be designed [to be traversed]. But more than designed, there’s nothing in this reference that tells you that you should be traversing on it. So it’s more than just designed. There’s nothing in this reference that says you would traverse it.” Tr. 34:15–22.

all of which a rider can ride.” Ex. 1013, 10:1–4. It concluded that such language would be “superfluous and introduce[] ambiguity.” *Id.* at 10:9–12.

We conclude the broadest-reasonable interpretation of “activity section” in light of the Specification does not require that a rider may traverse the entire activity section, including all portions of the sidewalls. Such a construction would be inconsistent with the Specification’s description that sidewalls may curve past vertical, as shown in Figure 12C. Ex. 1002, 4:5–6, Fig. 12C. In this regard, our construction comports with that of the district court. *See* Ex. 1013, 10:9–12. Beyond that, as discussed below (*see infra* at 41), whether the claims require that a rider may traverse some portion of the sidewall does not affect our conclusions regarding unpatentability. Thus, we do not further construe the “activity section.”

2. *“curved sidewall extending substantially upwardly from an edge of the middle section”*

Both independent claims recite two sidewalls as part of the activity section, i.e., a first curved sidewall and a second curved sidewall. As discussed below, the parties dispute whether Lochtefeld 589 discloses sidewalls extending substantially upwardly from an edge of the middle section, as claimed. *See infra* at 19. One central aspect of this dispute centers on the identification of the claimed “edge” and whether the prior art discloses sidewalls extending from such an edge.

The district court in related litigation construed this phrase to resolve certain disputes: whether the phrase is indefinite; whether the middle section must be rectangular in shape; and whether the sidewalls must extend along the entire side of the middle section. Ex. 1013, 10–14. Relevant here, the court concluded that the middle section need not be rectangular,

reasoning in part that by using “‘an’ instead of ‘the’ suggests that the edges are not strictly defined.” Ex. 1013, 13:23. The court further concluded that the sidewalls need not extend along the entire side of the middle section, reasoning that the Specification contains no description that would limit the claims in such a manner. *Id.* at 14:9–10. Thus, the district court construed the phrase as “upwardly curved wall that the rider may traverse extending from [an/another] edge of the middle section.” Ex. 1013, 14:15–18. It does not appear that the district court viewed the parties as disputing the inclusion of “that the rider may traverse.”

The Specification does not describe any aspect of “an edge” or the sidewalls extending from “an edge” of the middle section, other than expressing the claim language in the Summary. Ex. 1001, 1:24–28. That language, like the claims, refers to sidewalls extending from “an edge of the middle section” and “another edge of the middle section opposite the first curved side[wall]” and a “water delivery section” and “dewatering section,” coupled to “a side of the middle section” and “another side of the middle section opposite the water delivery section,” respectively. *Id.* at 1:24–32, 4:60–5:7, 6:22–36. Nothing in the ’016 patent’s Specification requires that the middle section be bounded by linear edges or parallel edges, and Patent Owner has identified nothing that would constrain a skilled practitioner’s reading in such a fashion. We agree with the district court that the claimed edges need not extend along the entire middle section and need not define a rectangular shape.

Regarding the claim phrase “extending substantially upwardly,” Patent Owner’s expert takes the position that curvature must be measured “perpendicular to a tangent along the edge.” See Ex. 1014, 59:3–60:1.

Patent Owner relies on its expert to argue that Lochtefeld 589 does not disclose the claimed sidewalls but provides no support for construing “extending substantially upwardly” in such a manner. Patent Owner’s expert does not provide any support for such a construction in his declaration. Instead, he asserts that Lochtefeld 589 discloses sidewalls that extend either downward or horizontally, without explaining how he comes to that conclusion. Ex. 2001 ¶ 23. We will not impose a limiting construction based solely on an expert’s unsupported statements. Without some reason to construe “extending substantially upwardly” as sought by Patent Owner, we consider the ordinary meaning of the phrase within the context of the claims and Specification. The Specification gives a very permissive and general description of the sidewalls. E.g., Ex. 1001, 3:15–22, 3:56–4:6. Thus, the Specification leads us to construe “extending substantially upwardly” as encompassing a sidewall that, at some point, extends above the edge of middle section corresponding to the side wall.

3. *“the first curved side”*

All claims recite that the “second curved sidewall” is opposite “the first curved side.” Although the claims do not provide antecedent basis for “the first curved side,” Petitioner proposes that the term be construed as “the first curved sidewall.” Pet. 20. Petitioner notes that Patent Owner argued in the related district court proceeding that “[i]t is beyond dispute that the claim term ‘the first curved side’ was intended to be ‘the first curved sidewall,’ both to comport with all of the disclosures of the ’016 Patent and also in accordance with proper antecedent basis.” *Id.* (citing Ex. 1010, 28:13–18). Patent Owner does not address this issue.

A district court may “correct an error in a patent by interpretation of the patent where no certificate of correction has been issued . . . only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.” *Novo Indus., LP v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003). We have applied this same standard in our proceedings. *E.g., Apple Inc. v. Achates Reference Publ’g, Inc.*, Case IPR2013-00080, slip op at 10–12 (PTAB June 3, 2013) (Paper 22). Here, we conclude the claims are properly read such that “first curved side” refers to the “first curved sidewall” and that such correction is not subject to reasonable debate. Neither party has identified how the prosecution history suggests a different interpretation. Thus, we adopt Petitioner’s proposed construction, namely “first curved sidewall.”

4. “additional water”

Claim 6 recites that “additional water flows from top portions of the first curved sidewall and the second curved sidewall toward the middle section.” We preliminarily construed “additional water” as water other than that delivered by the water delivery section. Inst. 14. Claim 1 recites that the water delivery section is configured to “deliver water up the middle section.” Thus, the “additional water” of claim 6 must be water that does not originate from the claimed water delivery section. The Specification does not appear to define “additional water” and states only that “[i]n some embodiments, water can also flow from top portions 36 of each sidewall 32.” Ex. 1001, 3:24–26. Neither party has argued that our construction was incorrect and we see no reason to depart from it. Therefore, based on the

claim language and Specification, we construe “additional water” as “water other than that delivered by the water delivery section.”

5. *“curved about an axis parallel to water flow” (claim 9)*

Claim 9 recites that the sidewalls “are curved about an axis parallel to water.” We preliminarily construed this term as “curved, at some point, about an axis parallel to the flow of water at any point on the activity section.” Inst. 14. The Specification does not appear to define “curved about an axis parallel to water flow” and states only that “[t]he sidewalls 32 can be curved about an axis that is parallel to water flow in the half-pipe water ride 10.” Ex. 1001, 3:20–22. Neither party has argued that our construction was incorrect and we see no reason to depart from it. We conclude the broadest-reasonable interpretation requires only that the sidewalls at some point be curved as claimed.

B. ANTICIPATION BY LOCHTEFELD 589

Petitioner asserts that claims 1–6, 8, 9, 11, 12, 15–17, 19, and 20 of the ’016 patent are anticipated by Lochtefeld 589. Pet. 20–37. Petitioner submits that Lochtefeld 589 discloses each of the limitations in the challenged claims. Pet. 20–37. Petitioner relies on Lochtefeld 589 (Ex. 1003) and the Declaration of Edward Pribonic (Ex. 1002). For this ground, we find Petitioner has met its burden with respect to claims 1–5, 8, 9, 12, 15–17, and 19, but has not met its burden regarding claim 6, 11, or 20.

Lochtefeld 589 describes a simulated-wave water-ride attraction with a number of features and embodiments. Lochtefeld 589, 1:12–19. To meet the goal of providing a compact structure that facilitates transport, Lochtefeld 589 describes a cover for its nozzle assemblies “for ensuring the

safety of riders in the absence of an extended transition surface.” *Id.* at 2:12–14. Lochtefeld 589’s Figure 4A is reproduced below:

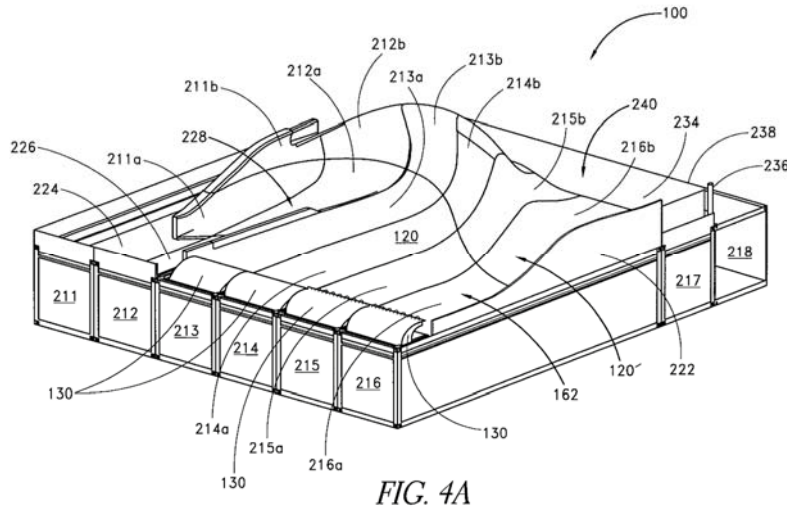


Figure 4A of Lochtefeld 589 depicts a water ride in which nozzles (130) along one side of the ride deliver water across a generally flat portion (162) to a sloped, curving portion comprising a number of ride surfaces (211a/b–216a/b) and to a beaching area (240) comprising a grate or drain. *See* Ex. 1003, 12:53–15:5.

1. Claim 1

Petitioner points out that Lochtefeld 589 discloses “a simulated-wave water ride attraction” and therefore satisfies the preamble of independent claims 1 and 20, which recites “a water ride for use by a rider.” Pet. 20 (citing Ex. 1003, [57]). It is unnecessary for us to determine whether the preamble limits the claims’ scope because we agree that Lochtefeld 589 is consistent with the preamble.

Petitioner maps the claimed “activity section including a substantially flat, inclined middle section, a first curved sidewall extending substantially upwardly from an edge of the middle section, and a second curved sidewall

extending substantially upwardly from another edge of the middle section opposite the first curved side” to the portion Lochtefeld 589 depicts in Figure 4A between the nozzles and the peak of the curved wall to which the nozzles supply water. Pet. 20–23 (citing Ex. 1003, 12:53–56, Fig. 4A; Ex. 1011; Ex. 1012, 10). We are persuaded by Petitioner’s arguments and evidence that this portion of the middle section is “substantially flat.” Accordingly, we find Lochtefeld 589 teaches the substantially flat middle section by disclosing a ride surface with “a generally flat or horizontal portion 162.” Ex. 1003, 12:53–56, Fig. 4A.

As the two claimed sidewalls, Petitioner identifies portions of the activity area in an annotated version of Lochtefeld 589’s Figure 4A. That annotated figure is reproduced below:

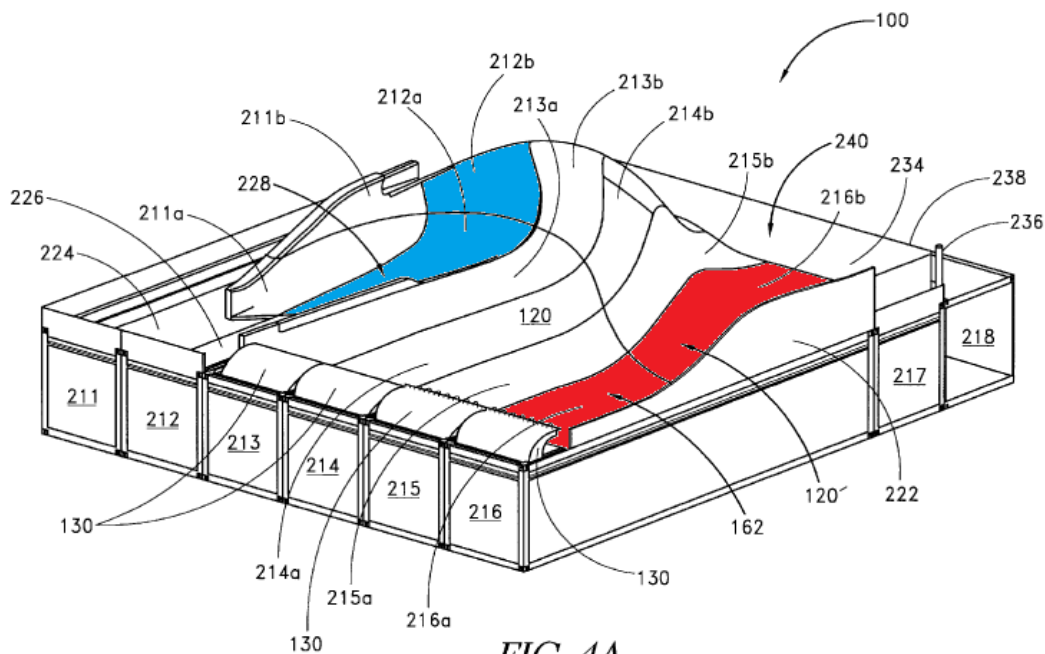


FIG. 4A

Pet. 22. The annotated Figure 4A provided by Petitioner depicts the water ride of Lochtefeld 589 as shown in Figure 4A, with portions 212a and 212b colored blue, and portions 216a and 216b colored red. *Id.* This mapping is

consistent with the plain claim language requiring that the second sidewall be opposite the first sidewall. Pet. 22–23; see Inst. 16–17.⁷ Petitioner presents persuasive argument and evidence supporting a finding that portions 216a and 216b are “a second curved sidewall” “opposite the first curved sidewall,” portions 212a and 212b.

Patent Owner argues that Petitioner fails to show that the sidewalls extend “from two edges” of the middle section. PO Resp. 3–10. In particular, Patent Owner argues that the Petition “does not identify the locations of the ‘edge’ and ‘another edge’ of the alleged ‘middle section’ in Fig. 4A from which Lochtefeld 589’s ‘curved sidewalls’ extend.” *Id.* at 5. But as depicted in Petitioner’s annotated Figure 4A above, Petitioner identifies portions of Lochtefeld 589’s ride surface as the two sidewalls, characterizing them as “bounding the middle section (162 and 120).” Pet. 22. We understand a section “bounding” the middle section to be one that abuts at least part of an edge of the middle section and therefore extends from that edge. Thus, contrary to Patent Owner’s argument, the Petition does identify those portions corresponding to the claimed edges of the middle section.

Petitioner asserts that the identified sidewalls extend substantially upwardly. *Id.* Patent Owner challenges this and argues that the sidewalls identified by Petitioner extend “either downwardly or horizontally” from the edge of the middle section. PO Resp. 6–10. Here, Patent Owner relies on its

⁷ While we construed “opposite” in the Institution Decision as “on the other side from,” Patent Owner neither addresses that construction nor argues that Lochtefeld 589 does not teach this aspect of claim 1. Accordingly, the construction of “opposite” does not meaningfully affect our unpatentability analysis and we therefore do not address it in this decision.

own annotated version of Lochtefeld 589's Figure 4A, which is reproduced below:

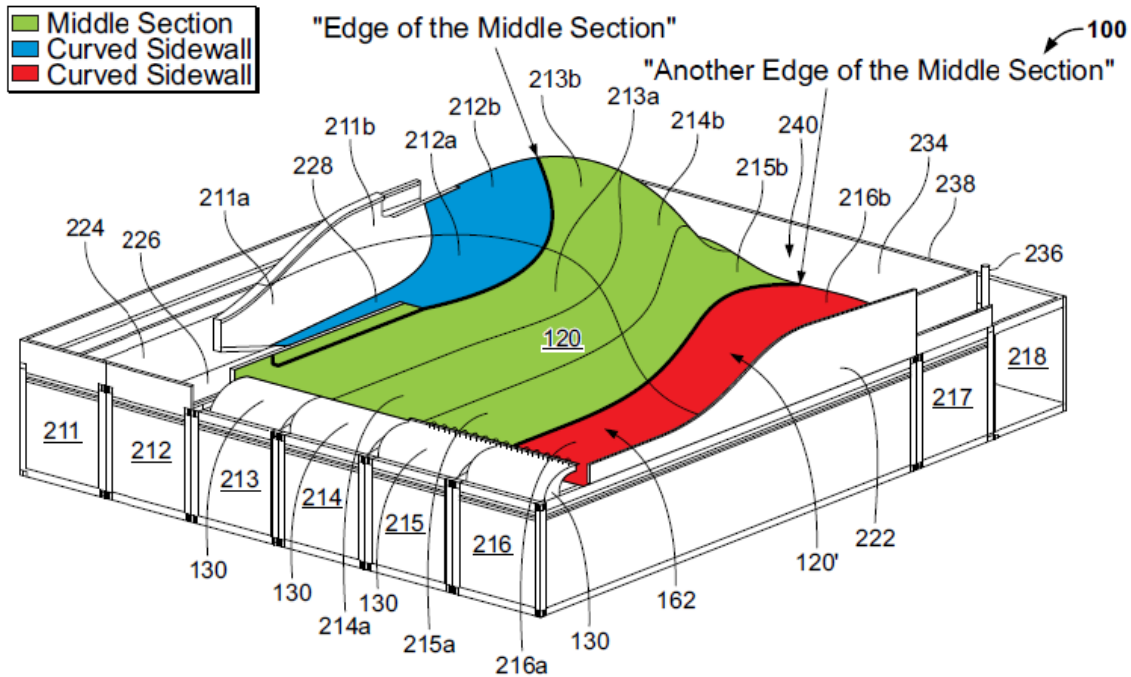


FIG. 4A

PO Resp. 6. Patent Owner's annotated version of Lochtefeld 589's Figure 4A depicts a central portion shaded green and labeled "Middle Section," surrounded by the blue and red sidewalls identified by Petitioner. Patent Owner's identification of the middle section, however, incorrectly includes portions of the ride surface that cannot comprise the claimed middle section, because the claimed "middle section" is "substantially flat." See Pet. Reply 2-3. Any "edge" of the middle section as defined by the '016 patent must coincide with a boundary of the substantially flat portion of the ride surface. Thus, Patent Owner's identification of the edges of the middle section does not comport with how Petitioner asserts the claims apply to

Lochtefeld 589's disclosures because Patent Owner includes an edge that is not substantially flat.

As discussed above, we construe “extending substantially upwardly” as encompassing a sidewall that, at some point, extends above the edge of middle section corresponding to the side wall. *See supra* at 12. Because the sidewalls identified by Petitioner in Lochtefeld 589 each have a portion that rises up from the plane of the middle portion, they extend substantially upwardly from the middle portion as claimed. Based on the foregoing discussion and the record, we find Lochtefeld 589 teaches “a first curved sidewall extending substantially upwardly from an edge of the middle section” and “a second curved sidewall extending substantially upwardly from another edge of the middle section opposite the first curved sidewall.” *See* Pet. Reply 9–11 (annotated figure including arrows showing a path from the substantially flat middle section up each curved sidewall that extends upwardly from an edge of the middle section).

Regarding the “water delivery section coupled to a side of the middle section” and that the water delivery section be “configured and arranged to deliver water up the middle section in a direction substantially opposite the rider’s direction of travel along the middle section,” Petitioner identifies the collection of nozzles 130 in Figure 4A. Pet. 23–25 (citing Ex. 1003, 13:25–28, Figs. 4A, 6A, 6B) (emphasis omitted). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. *See* Paper 10, 7 (“[A]ny arguments for patentability not raised in the response will be deemed waived.”). Having considered the record, we find Lochtefeld 589 teaches the claimed water-delivery section.

As to the claimed “dewatering section coupled to another side of the middle section opposite the water delivery section and located at an elevation higher than the water delivery section” limitation, Petitioner identifies Lochtefeld 589’s “grate or drain 234.” Pet. 25 (citing Ex. 1003, 14:64–15:5, Fig. 4A). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Lochtefeld 589 teaches the claimed dewatering section.

For the claimed “rider exit located adjacent the water delivery section” limitation, Petitioner identifies Lochtefeld 589’s “slide-over sluice cover [that] advantageously enables riders to safely slide over the sluice gate and/or injection nozzle without risk of injury or interference with ride operation.” Pet. 25–27 (citing Ex. 1003, [57], 10:19–30; Ex. 1002 ¶ 49) (emphasis omitted). Lochtefeld 589 states that Figures 4A–4D and 5A–5C depict embodiments that preferably comprise “a plurality of nozzle assemblies 188, as illustrated in FIGS. 3A–3D, with each including a slide-over sluice cover 150 and a padded fixed decking 190.” Ex. 1003, 12:28–36. Thus, Lochtefeld 589 expressly teaches embodiments using the slide-over sluice cover detailed in Figures 3A–3D with the remainder of the teachings associated with Figures 4A–4D and 5A–5C. *See Krippelz v. Ford Motor Co.*, 667 F.3d 1261, 1267–68 (Fed. Cir. 2012) (holding that a district court erred by denying JMOL of anticipation where the specification disclosed that certain features could be part of the embodiment asserted in an anticipation challenge). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated sufficiently that Lochtefeld 589 teaches the claimed rider exit.

Petitioner has proven by a preponderance of the evidence that Lochtefeld 589 teaches the limitations of claim 1. Accordingly, we find claim 1 is unpatentable as anticipated by Lochtefeld 589.

2. Claim 20

Where claim 1 recites a “substantially flat middle section,” independent claim 20 recites a “substantially flat, inclined middle section.” Petitioner asserts that Lochtefeld 589 depicts that its “ride section 120” is inclined upwardly. Pet. 21 (citing Ex. 1003, 12:53–56). That portion of Lochtefeld 589, however, states that “ride surface 120 comprises a sloped portion 120’ and a generally flat or horizontal portion 162.” Ex. 1003, 12:53–55. We find Lochtefeld distinguishes between its “generally flat or horizontal portion” and the “sloped portion” and that the sloped portion cannot also be part of what is claimed as a “substantially flat middle section.” Indeed, Petitioner states in the Reply that the “Petition did **not** include 120’ (described by Lochtefeld 589 as the ‘sloped ride surface’).” Pet. Reply 3. Additionally, because Lochtefeld 589 describes its flat portion as “horizontal,” it is not “inclined” as required by claim 20.

Accordingly, we find Petitioner has not proven by a preponderance of the evidence that claim 20 is unpatentable as anticipated by Lochtefeld 589.

3. Claim 2

Claim 2 depends from claim 1 and further recites that the “water delivery section includes a water delivery tank and a delivery ramp.” Petitioner relies on Lochtefeld 589’s Figures 5B and 5C as disclosing a delivery ramp (as the upsloping end of the water return path) and tank (as pool 217). Pet. 27–28. Patent Owner does not contest that Lochtefeld 589

teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that that claim 2 is unpatentable as anticipated by Lochtefeld 589.

4. *Claim 3*

Claim 3 depends from claim 1 and further recites that the “water delivery section includes a nozzle.” As described above, Petitioner’s assertions for claim 1 show that Lochtefeld 589 teaches a nozzle as part of the water delivery section. Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 3 is unpatentable as anticipated by Lochtefeld 589.

5. *Claim 4*

Claim 4 depends from claim 1 and further recites “a water retrieval section that carries water from the dewatering section back to the water delivery section.” Petitioner relies on Lochtefeld 589’s “grate or drain 234” that allows water “overflowing from the ride to flow down into the container or catch pool 217” where it is “directed by the catch pool 217 through openings 242 (FIG. 5B) back towards the pumps 144.” Pet. 27–28 (quoting Ex. 1003, 14:64–5:5; citing Ex. 1003, Figs. 5B, 5C) (emphasis omitted). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 4 is unpatentable as anticipated by Lochtefeld 589.

6. *Claim 5*

Claim 5 depends from claim 4 and further recites that “the water retrieval section is positioned under at least one of the dewatering section, the activity section, and the water delivery section.” Petitioner relies on the same disclosures as for claim 4 as showing that Lochtefeld 589 teaches this limitation. Pet. 29. Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 5 is unpatentable as anticipated by Lochtefeld 589.

7. *Claim 6*

Claim 6 depends from claim 1 and further recites that “additional water flows from top portions of the first curved sidewall and the second curved sidewall toward the middle section.” As discussed above, we construe “additional water” as water other than that delivered by the water delivery section. *See supra* at 15.

Petitioner asserts that Lochtefeld 589 discloses “that water flows from top portions of the curved sidewalls” and that the surface may be configured “to create waves of a preselected or predetermined configuration” and thus teaches this limitation. Pet. 29–30. Petitioner’s showing, however, does not address the claim term “additional” and fails to satisfy the claim language as we have construed it. *See supra* at 15. Accordingly, we find Petitioner has not proven by a preponderance of the evidence that claim 6 is unpatentable as anticipated by Lochtefeld 589.

8. Claim 8

Claim 8 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall have different radii of curvature.” Petitioner relies on Lochtefeld 589’s figures as showing sidewalls with different radii of curvature. Pet. 30 (citing Ex. 1003, Figs. 4A, 6A, 6B; Ex. 1002 ¶ 59). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 8 is unpatentable as anticipated by Lochtefeld 589.

9. Claim 9

Claim 9 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall are curved about an axis parallel to water flow, and are connected by a substantially flat activity section.” Petitioner relies on Lochtefeld 589’s Figure 4A as showing this limitation. Pet. 31 (citing Ex. 1003, Fig. 4A; Ex. 1002 ¶ 60). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Under our construction above (*see supra* at 16), the axis need be parallel to water flow at only one point. In light of the varying curvature of Lochtefeld 589’s sidewalls and Petitioner’s expert’s testimony, which we credit, we find Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 9 is unpatentable as anticipated by Lochtefeld 589.

10. Claim 11

Claim 11 depends from claim 1 and further recites that “the water delivery section delivers water toward the activity section at a speed between

about 10 miles per hour and about 20 miles per hour.” Petitioner admits that “Lochtefeld 589 does not expressly disclose this limitation” but contends that it is “inherent because of the physics involved with the fluid dynamics.” Pet. 32 (citing Ex. 1002 ¶¶ 62–63). Patent Owner does not contest that this limitation is inherent in Lochtefeld 589.

Petitioner fails to support that Lochtefeld 589 discloses a system that necessarily delivers water toward the activity section at a speed between about 10 miles per hour and about 20 miles per hour. Petitioner’s expert states that such a speed “would be the speed for a given ride configuration that would 1) create the necessary wave; 2) be fast enough so as to balance the rider’s downward movement in view of gravity; and 3) not be too fast so as to sweep the rider from the activity section.” Ex. 1002 ¶ 62. But Petitioner’s expert does not state that Lochtefeld 589 discloses such a “given ride configuration.” *Id.* For a prior-art reference to inherently disclose a limitation of the claim, the petitioner must show “the missing descriptive matter is necessarily present in the thing described in the reference.” *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). Petitioner has not done that here. Accordingly, Petitioner has not proven by a preponderance of the evidence that claim 11 is unpatentable as anticipated by Lochtefeld 589.

11. Claim 12

Claim 12 depends from claim 1 and further recites that “a depth of water in the middle section is between about 1 inch and about 12 inches.” Petitioner relies on Lochtefeld 589’s disclosure that “the vertical opening of the sluice aperture 192 is preferably about 8 cm (3 inches)” and in another embodiment “is in the range from about 4 cm to about 30 cm (about 1.5

inches to about 12 inches).” Pet. 33 (quoting Ex. 1003, 9:64–10:2) (emphasis omitted). Petitioner asserts also that the sluice opening “provides general boundaries for the depth of the middle section.” *Id.* (citing Ex. 1002 ¶ 64). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 12 is unpatentable as anticipated by Lochtefeld 589.

12. Claim 15

Claim 15 depends from claim 1 and further recites that “at least one of the first curved sidewall and the second curved sidewall is curved at an angle of at least one of greater than ninety degrees, about ninety degrees, and less than ninety degrees.” Petitioner argues that this claim “covers the entire spectrum of angles that can apply to a curve” and thus does not have a different scope from claim 1. Pet. 35. We agree. Thus, for the same reasons discussed above regarding claim 1, we find Petitioner has demonstrated by a preponderance of the evidence that claim 15 is unpatentable as anticipated by Lochtefeld 589.

13. Claim 16

Claim 16 depends from claim 1 and further recites that “the dewatering section is substantially flat and includes at least one of a grate and a soft mat.” Petitioner relies on Lochtefeld 589’s disclosure “that the dewatering section is ‘grate 234’” and Figure 4A showing the grate as flat. Pet. 35 (quoting Ex. 1003, 14:64–66; citing Ex. 1003, Fig. 4A). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a

preponderance of the evidence that claim 16 is unpatentable as anticipated by Lochtefeld 589.

14. Claim 17

Claim 17 depends from claim 1 and further recites that “the activity section is about eight meters wide.” Petitioner relies on Lochtefeld 589’s disclosure that dimension B2, the size of one module, in Figure 4B is “about . . . 2.438 m (8 ft),” combined with the fact that Figure 4B depicts four such modules as teaching an activity section of 9.75 meters. Pet. 36 (citing Ex. 1003, 15:62–65; Ex. 1002 ¶ 69). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that Lochtefeld 589’s activity section of 9.75 meters is “about eight meters wide” and thus that claim 17 is unpatentable as anticipated by Lochtefeld 589.

15. Claim 19

Claim 19 depends from claim 1 and further recites that “at least one of the first curved sidewall and the second curved sidewall is about two meters wide.” Similar to claim 17, Petitioner relies on Lochtefeld 589’s disclosure that dimension B2, the size of one module, in Figure 4B is “about . . . 2.438 m (8 ft).” Pet. 37 (citing Ex. 1003, 15:62–65; Ex. 1002 ¶ 71). Patent Owner does not contest that Lochtefeld 589 teaches this limitation. Because Petitioner has identified each curved sidewall as corresponding to one of Lochtefeld 589’s modules, we find 2.438 meters is “about two meters” as claimed. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 19 is unpatentable as anticipated by Lochtefeld 589.

C. OBVIOUSNESS OVER LOCHTEFELD 589

In addition to the ground based on anticipation by Lochtefeld 589, Petitioner argues in the alternative that claims 1–20 are unpatentable as obvious over Lochtefeld 589, raising obviousness arguments regarding one limitation common to claims 1 and 20, and the additional limitations in dependent claims 7, 10, 11, 13, 14, and 18. Pet. 20–37. Petitioner relies on Lochtefeld 589 (Ex. 1003) and the Declaration of Mr. Pribonic (Ex. 1002). For this ground, we conclude Petitioner has met its burden with respect to claims 1–5, 7–13, and 15–19, but has not met its burden regarding claim 6, 14, or 20.

1. The level of ordinary skill in the art

Petitioner asserts that the applicable person of ordinary skill in the art is “a person with skill in designing, manufacturing, or refurbishing surfing simulation water rides.” Pet. 17. Petitioner’s expert declarant applies that definition in his analysis. Ex. 1002 ¶ 17. We adopted that definition in our institution decision and noted that the teachings of the prior art presented in the Petition reflect that level of skill. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Inst. 19. Patent Owner does not challenge Petitioner’s definition of the level of ordinary skill in the art, and we also adopt it here.

2. Claim 1

Petitioner’s arguments regarding unpatentability of claim 1 as obvious over Lochtefeld 589 largely track those for the anticipation ground discussed above. The notable difference relates to the final claim limitation: “a rider exit located adjacent the water delivery section.” For that limitation,

Petitioner recognizes that Lochtefeld 589 details the nozzle cover discussed above in Fig. 3A, and Petitioner asserts that “it would have been obvious to employ the disclosed nozzle cover with the embodiment of Fig. 4A, as it would be a method of ensuring safety during use in accordance with the teachings of Lochtefeld 589.” Pet. 26 (citing Ex. 1002 ¶ 50). Petitioner further asserts that “a person of ordinary skill in the art would likely use multiple exits . . . to ensure rider safety by allowing a rider to exit the ride no matter at what part the rider decides to do so.” *Id.* at 27 (citing Ex. 1002 ¶ 51). Patent Owner does not challenge this aspect of Petitioner’s case. *See* PO Resp. 10–15.

Although we find above that Lochtefeld 589 anticipates and therefore teaches all limitations of claim 1, we also agree with Petitioner that Lochtefeld 589 renders obvious the subject matter of claim 1. To the extent Lochtefeld 589 does not disclose the nozzle cover as part of the embodiment in Figures 4A–4D and 5A–4C (*see supra* at 22, concluding Lochtefeld 589 discloses exactly that), we credit the testimony of Petitioner’s expert that using the nozzle cover would improve safety. Thus, Petitioner provides an “articulated reasoning with some rational underpinning” for a skilled artisan to use the nozzle cover of Lochtefeld 589’s Figure 3A with the nozzles shown in Figure 4A, namely, to improve safety. *See Kahn*, 441 F.3d at 988.

In all other regards, we conclude Lochtefeld 589 teaches the limitations of claim 1 as discussed above regarding anticipation by Lochtefeld 589. *See supra* at 17. Patent Owner repeats its argument regarding the curved sidewalls of Lochtefeld 589. For the same reasons discussed above, we do not agree with that argument. *See supra* at 19.

Accordingly, having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over Lochtefeld 589.

3. *Claim 7*

Claim 7 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall have a substantially equal radius of curvature.” Petitioner asserts that “it would have been obvious to modify Lochtefeld 589’s disclosure to provide two curved sidewalls with a substantially equal radius of curvature, as it would simply change the flow pattern of the water on the ride.” Pet. 30 (citing Ex. 1002 ¶ 58). Patent Owner does not address the obviousness of this claim. We agree with Petitioner. The ’016 patent describes this aspect of the invention broadly, stating that the curvature of the walls may be the same or different, and does not indicate in any way that the amount of curvature is significant. Ex. 1001, 3:15–20. The relative curvature of the two sidewalls is not “the heart of [this] invention.” *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016). Rather, claim 7 expresses one of many possible geometric variations that a person of skill would consider when producing an embodiment of the invention described in the ’016 patent. We credit the testimony of Petitioner’s expert that varying the curvature would simply change the flow pattern of water on the ride. Ex. 1002 ¶ 58. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 7 would have been obvious over Lochtefeld 589.

4. *Claim 10*

Claim 10 depends from claim 1 and further recites that “the rider exit comprises stairs.” Petitioner asserts that a skilled artisan “would have known to use stairs as they were both typical and preferred means of entry or exit for water ride attractions as those disclosed in Lochtefeld 589.” Pet. 31–32 (citing Ex. 1002 ¶ 61). Patent Owner does not the address the obviousness of this claim.

We credit the testimony of Petitioner’s expert that a person of ordinary skill in the art would have known to use stairs with the rider exit. *See* Ex. 1002 ¶ 61. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over Lochtefeld 589.

5. *Claim 11*

Claim 11 depends from claim 1 and further recites that “the water delivery section delivers water toward the activity section at a speed between about 10 miles per hour and about 20 miles per hour.” In addition to the inherency argument discussed above (*see supra* at 26), Petitioner asserts that this limitation “would have been an obvious design choice in view of itself” Pet. 32. Patent Owner does not the address the obviousness of this claim.

We question Petitioner’s phrasing, as an “obvious design choice” generally refers to an aspect of a claimed invention that has no bearing on the structure and function of the invention. *See In re Chu*, 66 F.3d 292, 298–99 (Fed. Cir. 1995). That said, we credit the testimony of Petitioner’s expert that a skilled artisan would find it obvious to select water speed as claimed in order to “1) create the necessary wave; 2) be fast enough so as to balance the rider’s downward movement in view of gravity; and 3) not be too fast so

as to sweep the rider from the activity section.” Ex. 1002 ¶ 62. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 11 would have been obvious over Lochtefeld 589.

6. *Claim 13*

Claim 13 depends from claim 1 and further recites that “the activity section is constructed of fiberglass panels.” Petitioner asserts that skilled artisans “would be aware that fiberglass was routinely used in the construction of water ride attractions.” Pet. 34 (citing Ex. 1002 ¶ 65). Patent Owner does not address the obviousness of this claim.

We credit the testimony of Petitioner’s expert that skilled artisans were aware of fiberglass as a common material for constructing such water rides. Ex. 1002 ¶ 65. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 13 would have been obvious over Lochtefeld 589.

7. *Claim 14*

Claim 14 depends from claim 1 and further recites that “the activity section is constructed of concrete covered by a soft padding.” Petitioner asserts it “would have been obvious to construct Lochtefeld 589’s activity section with concrete covered by a soft padding” but provides no additional reasoning or evidence to support that conclusion. Pet. 35. Petitioner points out a statement by the Examiner during prosecution, made regarding another Lochtefeld patent, that using “any desired dimension and suitable materials to accommodate any particular environment” would have been obvious (*id.*

(emphasis omitted)), but similarly provides no support for such a conclusion. *See* 37 C.F.R. § 42.22(a)(2).

We conclude Petitioner has not proven by a preponderance of the evidence that the subject matter of claim 14 would have been obvious over Lochtefeld 589.

8. Claim 18

Claim 18 depends from claim 1 and further recites that “the middle section is about four meters wide.” Petitioner asserts that “it would have been obvious to dimension Lochtefeld 589’s middle section to be about four meters wide” because “the change amounts to a change in size/proportion, and the MPEP teaches that such changes ‘are considered routine expedients’ and ‘normally require only ordinary skill in the art.’” Pet. 36–37 (quoting MPEP § 2144.04 (9th ed. rev. 07.2015 Nov. 2015)). Patent Owner does not address the obviousness of this claim.

The Specification gives “about four meters” as an exemplary width of the middle section but makes clear that is not an important aspect of the invention, stating “the half-pipe water ride 10 can be scaled up or down depending on its general use and/or the facility.” Ex. 1001, 4:35–37. Having considered the record, we agree with Petitioner and conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 18 would have been obvious over Lochtefeld 589.

9. Claims 2–6, 8, 9, 12, 15–17, 19, and 20

For the additional limitations of claims 2–6, and 8, 9, 12, 15–17, and 19, and for claim 20, Petitioner relies on its assertions regarding anticipation by Lochtefeld 589 discussed above. Pet. 27–37. Patent Owner does not

address these claims other than relying on the same arguments made for claim 1. *See* PO Resp. 22.

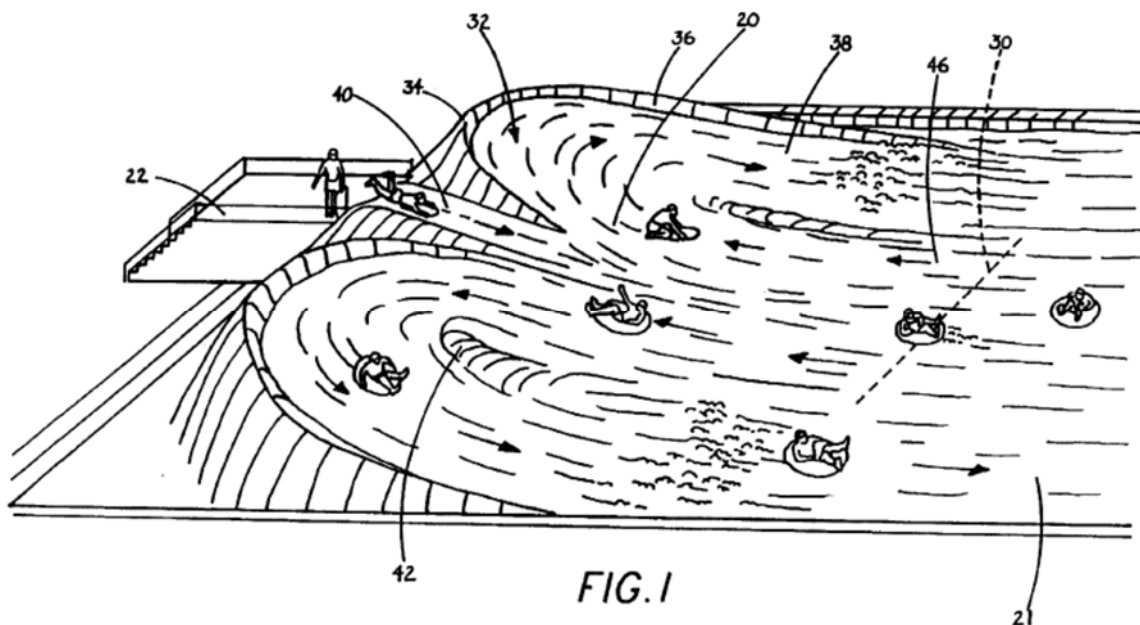
For the same reasons disclosed above regarding obviousness of claim 1 over Lochtefeld 589 and anticipation of claims 2–5, 8, 9, 12, 15–17, and 19 by Lochtefeld 589, we conclude Petitioner has demonstrated by a preponderance of the evidence that claims 2–5, 8, 9, 12, 15–17, and 19 are unpatentable as obvious over Lochtefeld 589.

Similarly, for the same reasons discussed above regarding anticipation of claims 6 and 20 by Lochtefeld 589, we conclude Petitioner has not proven by a preponderance of the evidence that the subject matter of claim 6 would have been obvious over Lochtefeld 589. *See supra* at 25, 23.

D. OBVIOUSNESS OVER LOCHTEFELD 589 AND LOCHTEFELD 590

Petitioner asserts that the subject matter of claims 1–20 would have been obvious to a person of ordinary skill in the art at the time of invention in light of teachings from Lochtefeld 589 and Lochtefeld 590. Pet. 37–47. Petitioner relies on Lochtefeld 589 (Ex. 1003), Lochtefeld 590 (Ex. 1004), and the Declaration of Mr. Pribonic (Ex. 1002). For this ground, we conclude Petitioner has not met its burden regarding claim 1–20.

Lochtefeld 590 discloses a water ride with a “butterfly configuration” in which water is injected by nozzles to flow up an inclined surface, curves outward in both directions as directed by curved sidewalls, and flows back down the outside of the ride. *E.g.*, Ex. 1004, 3:6–15, Fig. 1. Lochtefeld 590’s Figure 1 is reproduced below:



Lochtefeld 590's Figure 1 depicts a water ride with an inclined surface having a butterfly configuration. Ex. 1004, 7:15–17, Fig. 1. Lochtefeld 590 teaches that “[t]he curvature of the sidewall 36 can also be varied along the outside perimeter of the turn[] to cause various flow effects as the water flowing up the incline moves up and across the sidewalls.” *Id.* at 8:30–33.

Petitioner asserts that, “[t]o the extent Lochtefeld 589 does not teach two opposite, curved sidewalls, a person of ordinary skill in the art would have been motivated to apply Lochtefeld 590's two opposite, curved sidewalls to the water ride disclosed in Lochtefeld 589.” Pet. 38. But when Petitioner maps the limitations of claim 1 to the teachings of the prior art, it asserts that the entire activity section (including the middle section) is taught by Lochtefeld 590. Pet. 39–41. Petitioner, however, provides no reason that a person of skill would have combined Lochtefeld 590 with Lochtefeld 589 in this manner. Rather, Petitioner argues that a skilled artisan would have applied Lochtefeld 590's “two opposite, curved sidewalls to Lochtefeld 589's ride to introduce . . . additional ‘flow effects’” as taught in

Lochtefeld 590. Pet. 38. By limiting the rationale for the combination to one particular feature, Petitioner has only supported using that feature in the combination and may not rely on additional features in Lochtefeld 590 without explaining the reason a person of skill would have looked at them. Stated otherwise, Petitioner’s reason to use Lochtefeld 590’s sidewalls—to introduce additional flow effects (see Pet. 38)—does not have rational underpinning to justify also using Lochtefeld 590’s middle section with Lochtefeld 589’s ride. *See Kahn*, 441 F.3d at 988.

Petitioner explains that its assertions regarding obviousness of claim 1 over Lochtefeld 589 and Lochtefeld 590 incorporate “its other arguments for the remaining limitations of Claims 1 and 20 from Ground 1” but “presents new arguments with respect to the limitation [1.A]/[20.A]” (the “activity section” limitation). Pet. 42 n.6. Thus, Petitioner neither relies on Lochtefeld 589 as teaching the middle section nor provides a reason to use Lochtefeld 590’s middle section in the combination. Accordingly, we conclude Petitioner has not proven by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over Lochtefeld 589 and Lochtefeld 590.

Because Petitioner’s assertions regarding claims 2–20 depend on the same assertion regarding claim 1, we also conclude Petitioner has not proven that the subject matter of those claims would have been obvious over Lochtefeld 589 and Lochtefeld 590.

E. ANTICIPATION BY LOCHTEFELD 530

Petitioner asserts that Lochtefeld 530 teaches the limitations of claims 1–5, 11, 15, 16, 18, and 20. Pet. 47–60. Petitioner relies on Lochtefeld 530

(Ex. 1005) and the Declaration of Mr. Pribonic (Ex. 1002). As noted above, because Petitioner's assertions for those claims do not depend on modifying Lochtefeld 530 or combining it with another reference, we consider the ground to be one of anticipation. For this ground, we find Petitioner has met its burden with respect to claims 1–5, 15, 16, 18, and 20, but has not met its burden regarding claim 11.

Lochtefeld 530 discloses a water ride with an inclined ride surface over which nozzles inject a sheet of water to simulate an “ocean surfing experience.” Ex. 1005, 4:5–21. Water flows over the top of the surface where it can drain through a “porous recovery floor.” *Id.* at 6:12–14. Lochtefeld 530's Figure 1 is reproduced below:

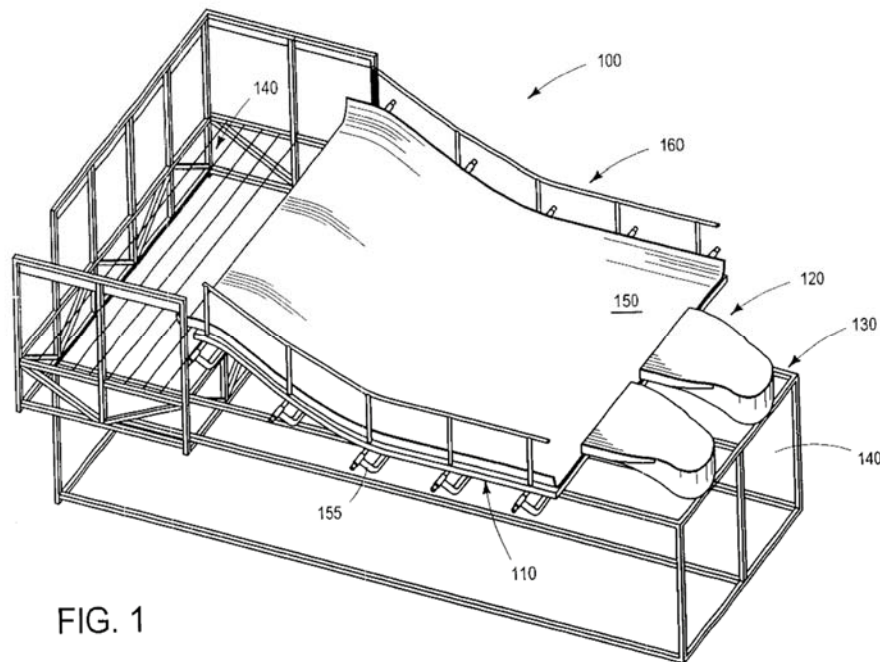


Figure 1 depicts water ride 100 with inclined ride surface 150 and water-injection nozzles 120. Lochtefeld 530's Figure 2A is reproduced below:

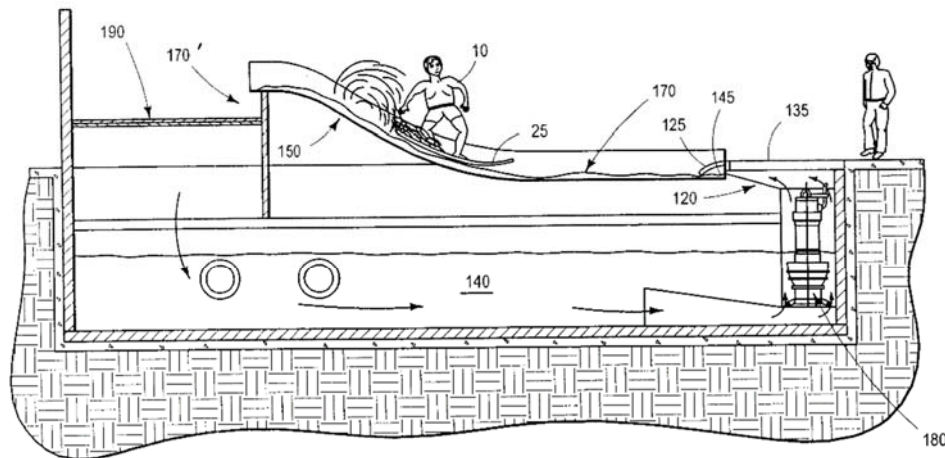


FIG. 2A

Figure 2A depicts a cross section of the water ride of Figure 1, including the porous recovery floor 190 and soft foam sluice cover 125, which Lochtefeld 530 states “may be provided adjacent the lower end of the ride surface 150 over the exit or sluice portion of the nozzle 120 to provide an energy-absorbing and/or slide-over safety structure that protects riders 10 from possibly colliding with the nozzle 120” and “also advantageously provides a short transition surface over the top of which a rider 10 can safely slide and exit the ride.” Ex. 1005, 7:17–28.

1. Claim 1

Petitioner points out that Lochtefeld 530 discloses water rides for use by a rider and therefore satisfies the preamble of claim 1. Pet. 49 (citing Ex. 1005, 5:38–41, Fig. 2A). It is unnecessary for us to determine whether the preamble limits the claims’ scope because we agree that Lochtefeld 530 is consistent with the preamble.

Petitioner maps the claimed “activity section including a substantially flat middle section, a first curved sidewall extending substantially upwardly from an edge of the middle section, and a second curved sidewall extending

substantially upwardly from another edge of the middle section opposite the first curved side” to the portion Lochtefeld 530 depicts as the “ride surface” 150 with sidewalls 160. Pet. 49–50 (citing Ex. 1005, Figs. 1, 2A; Ex. 1002 ¶ 104). We find Lochtefeld 530 teaches the activity section including a substantially flat middle section by disclosing an “inclined ride surface.” Ex. 1005, 5:54–55, Figs. 1, 2A.

Patent Owner argues that Lochtefeld 530’s sidewalls are not part of the activity section and that Lochtefeld 530 does not disclose sidewalls within the scope of the claims of the ’016 patent. PO Resp. 30–32. Patent Owner asserts first that because the Petition states that Lochtefeld 530 teaches an “activity section bounded by sidewalls (160),” it “concedes that the alleged ‘activity section’ excludes ‘sidewalls (160).’” PO Resp. 30–31 (emphasis omitted). We do not agree. First, as Petitioner points out, the word “bounded” does not necessarily exclude the sidewalls from the activity section. Pet. Reply 23–24. Second, the Petition identifies the sidewalls as part of the activity section (Pet. 49–50), so Patent Owner’s attempt to take advantage of Petitioner’s phrasing would contradict the plain thrust of Petitioner’s arguments.

Next, Patent Owner asserts that Lochtefeld 530’s sidewalls cannot be part of an activity section because they “are not traversed by a rider.” PO Resp. 32 (citing Ex. 2001 ¶ 48). In particular, Patent Owner argues that because the sidewalls “keep the rider on the ride surface,” they cannot be traversed. *Id.* (citing Ex. 2001 ¶ 49). We do not agree, even under Patent Owner’s apparent construction of “activity section.” *See supra* at 10. The edges of Lochtefeld 530’s ride surface curve upwards at each side of the surface. Ex. 1005, Fig. 1. Nothing about the arrangement or shape of those

curves suggests that a rider could not or would not traverse them. *See* Pet. Reply 26. As Lochtefeld 530's Figure 1 shows, the walls are within the safety railings. *See also* Ex. 1005, Figs. 4A, 4B. Lochtefeld 530 discloses that water "lacking sufficient kinetic energy to flow over the ridgeline 155, rolls down and off to the side of the ride surface 150." *Id.* at 6:6–8. By describing water flowing over the side walls, Lochtefeld 530 teaches that a rider may use that portion of the ride surface, up to the point where a safety railing prevents the rider from moving farther. Because the safety railings are outboard of the curved sidewalls, Lochtefeld 530 teaches a sidewall that the rider may traverse.

Lochtefeld 530 depicts that the sidewalls of the ride surface curve upwards at the edges of the ride, before the safety railing depicted in Figure 1. Ex. 1005, Fig. 1; *see also* Ex. 1002 ¶ 104. Based on the foregoing discussion and the record, we find Lochtefeld 530 teaches "a first curved sidewall extending substantially upwardly from an edge of the middle section" and "a second curved sidewall extending substantially upwardly from another edge of the middle section opposite the first curved sidewall."

Regarding the "water delivery section coupled to a side of the middle section," including "at least one nozzle configured and arranged to deliver water up the entire length of the middle section" limitation, Petitioner identifies the "high-pressure pumps 180 placed in hydraulic communication with one or more of the water injection nozzles 120" of Lochtefeld 530. Pet. 51–52 (citing Ex. 1005, 5:66–6:2, 6:12–15, Fig. 2A) (emphasis omitted). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Lochtefeld 530 teaches the claimed water-delivery section.

As to the claimed “dewatering section coupled to another side of the middle section opposite the water delivery section and located at an elevation higher than the water delivery section” limitation, Petitioner identifies Lochtefeld 530’s “porous recovery floor 190” coupled to the middle section 150 and draining to the “reservoir 140.” Pet. 52 (quoting Ex. 1005, 6:12–18; citing Fig. 2A). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Lochtefeld 530 teaches the claimed dewatering section.

For the claimed “rider exit located adjacent the water delivery section” limitation, Petitioner identifies Lochtefeld 530’s “soft foam sluice cover 124 [that] may be provided adjacent the lower end of the ride surface 150 over the exit or sluice portion of the nozzle 120” and the teaching that “[t]he sluice cover 125 also advantageously provides a short transition surface over the top of which a rider 10 can safely slide and exit the ride.” Pet. 52–53 (quoting Ex. 1005, 7:17–28, Fig. 2A) (emphasis omitted). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Lochtefeld 530 teaches the claimed rider exit.

Petitioner has proven by a preponderance of the evidence that Lochtefeld 530 teaches the limitations of claim 1. Pet. 47–53. Accordingly, we find claim 1 is unpatentable as anticipated by Lochtefeld 530.

2. *Claim 20*

Where claim 1 recites a “substantially flat middle section,” independent claim 20 recites a “substantially flat, inclined middle section.” Petitioner asserts that Lochtefeld 530 teaches this limitation by disclosing a “ride surface 150.” Pet. 49 (citing Ex. 1005, Figs. 1, 2A). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. We agree with

Petitioner and find Lochtefeld 530 teaches a substantially flat, inclined middle section.

Claim 20 also recites that the water delivery section includes “at least one nozzle,” a limitation that parallels that added to claim 1 by claim 3. As described above, Petitioner’s assertions for claim 1 show that Lochtefeld 530 teaches a nozzle as part of the water delivery section.

The remaining limitations of claim 20 substantially match those of claim 1. For the same reasons described above regarding claim 1, we find Lochtefeld 530 teaches those limitations. Accordingly, having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 20 is unpatentable as anticipated by Lochtefeld 530.

3. Claim 2

Claim 2 depends from claim 1 and further recites that the “water delivery section includes a water delivery tank and a delivery ramp.” Petitioner relies on Lochtefeld 530’s Figure 2B, which shows the water return path in cross section. Pet. 53. Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 2 is unpatentable as anticipated by Lochtefeld 530.

4. Claim 3

Claim 3 depends from claim 1 and further recites that the “water delivery section includes a nozzle.” As described above, Petitioner’s assertions for claim 1 show that Lochtefeld 530 teaches a nozzle as part of the water delivery section. Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we

find Petitioner has demonstrated by a preponderance of the evidence that claim 3 is unpatentable as anticipated by Lochtefeld 530.

5. *Claim 4*

Claim 4 depends from claim 1 and further recites “a water retrieval section that carries water from the dewatering section back to the water delivery section.” Petitioner relies on Lochtefeld 530’s disclosure that “[t]he majority of emitted sheet water flow 170’ flows over the top of the ride surface 110 and drains through a porous recovery floor 190 . . . [that] allow[s] water to drain back into the reservoir 140.” Pet. 54 (quoting Ex. 1005, 6:12–18; citing Ex. 1002 ¶ 114) (emphasis omitted). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 4 is unpatentable as anticipated by Lochtefeld 530.

6. *Claim 5*

Claim 5 depends from claim 4 and further recites that “the water retrieval section is positioned under at least one of the dewatering section, the activity section, and the water delivery section.” Petitioner relies on Lochtefeld 530’s Figure 2A as teaching this limitation. Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 5 is unpatentable as anticipated by Lochtefeld 530.

7. *Claim 11*

Claim 11 depends from claim 1 and further recites that “the water delivery section delivers water toward the activity section at a speed between

about 10 miles per hour and about 20 miles per hour.” Petitioner admits that Lochtefeld 530 does not expressly disclose this limitation but contends that it is “inherent because of the physics involved with the fluid dynamics.”

Pet. 56.

For the same reasons discussed above regarding anticipation of claim 11 by Lochtefeld 589 (*see supra* at 26), we conclude Petitioner has not proven by a preponderance of the evidence that claim 11 is unpatentable as anticipated by Lochtefeld 530.

8. *Claim 15*

Claim 15 depends from claim 1 and further recites that “at least one of the first curved sidewall and the second curved sidewall is curved at an angle of at least one of greater than ninety degrees, about ninety degrees, and less than ninety degrees.” Petitioner argues persuasively that this claim “covers the entire spectrum of angles that can apply to a curve” and thus does not have a different scope from claim 1. Pet. 58. Patent Owner does not contest Petitioner’s contentions in this regard. Thus, for the same reasons discussed above regarding claim 1, having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 15 is unpatentable as anticipated by Lochtefeld 530.

9. *Claim 16*

Claim 16 depends from claim 1 and further recites that “the dewatering section is substantially flat and includes at least one of a grate and a soft mat.” Petitioner relies on Lochtefeld 530’s porous recovery floor, which “comprises an extruded fiberglass grate covered with a soft vinyl tube matting or perforated rubberized matting.” Pet. 58 (quoting Ex. 1005, 6:18–

21). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 16 is unpatentable as anticipated by Lochtefeld 530.

10. Claim 18

Claim 18 depends from claim 1 and further recites that “the middle section is about four meters wide.” Petitioner relies on Lochtefeld 530’s disclosure of a ride surface approximately five meters wide. Pet. 59 (citing Ex. 1005, 5:45–48). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we find Petitioner has demonstrated by a preponderance of the evidence that claim 18 is unpatentable as anticipated by Lochtefeld 530.

F. OBVIOUSNESS OVER LOCHTEFELD 530 AND LOCHTEFELD 590

Petitioner asserts that the subject matter of claims 1–20 would also have been obvious to a person of ordinary skill in the art at the time of invention in light of teachings from Lochtefeld 530 and Lochtefeld 590. Pet. 47–60. Petitioner relies on Lochtefeld 530 (Ex. 1005), Lochtefeld 590 (Ex. 1004), and the Declaration of Mr. Pribonic (Ex. 1002). For this ground, we conclude Petitioner has met its burden with respect to claims 1–5 and 7–20, but has not met its burden regarding claim 6.

Although Petitioner presents this ground in combination with assertions that Lochtefeld 530 alone teaches the limitations of claims 1–5, 11, 15, 16, 18, and 20 (the previously discussed ground), Petitioner relies on Lochtefeld 590 as teaching only one limitation of claims 1 and 20, and the additional limitations in dependent claims 6, 7, 9, and 12–14. Pet. 47–60.

Petitioner further asserts that the subject matter of claims 8, 10–14, and 17–19 would have been obvious to a person of ordinary skill in the art in light of the teachings of Lochtefeld 530 or Lochtefeld 590. Pet. 55–59.

1. Claim 1

Petitioner asserts it would have been obvious to use the curved sidewalls of Lochtefeld 590 with the basic ride of Lochtefeld 530 to cause various flow effects in the water. Pet. 50–51. Specifically, Petitioner argues that Lochtefeld 590 discloses curved sidewalls such that the “curvature of the sidewall 36 can also be varied along the outside perimeters of the turn to cause various flow effects as the water flowing up the incline moves up and across the sidewalls.” *Id.* at 50–51 (quoting Ex. 1004, 8:30–34, citing Fig. 1). Petitioner identifies Lochtefeld 590’s sidewalls and the disclosures that those sidewalls “maintain the water on the ride” and “maintain the rider on the ride surface 20.” *Id.* (quoting Ex. 1004, 8:27–30).

Petitioner asserts that a person of ordinary skill had reason “to apply Lochtefeld 590’s disclosure of curved sidewalls to add curvature to the sidewalls already disclosed in Lochtefeld 530” for the same reason discussed above—“to cause various flow effects as the water flowing up the incline moves up and across the sidewalls.” Pet. 47–48 (quoting Ex. 1004, 8:30–34) (emphasis omitted). Petitioner asserts the combination “would be a simple substitution of one known element (curved sidewalls from Lochtefeld 590) for another (sidewalls from Lochtefeld 530) to obtain predictable results (additional ‘flow effects’).” *Id.* at 48.

Patent Owner argues that incorporating Lochtefeld 590’s sidewalls into Lochtefeld 530’s ride surface would change Lochtefeld 530’s principle

of operation because it would prevent water from flowing over the sides of the ride surface. PO Resp. 33–36.

As Petitioner points out (Pet. Reply 28), Patent Owner recognizes that Lochtefeld 530’s sidewalls “provide a barrier to keep the rider on the ride” and also that Lochtefeld 590’s sidewalls “maintain the rider on the ride surface” (PO Resp. 34–35). Thus, the sidewalls in the two references share one common purpose, namely to retain the rider on the ride surface.

Additionally, although using Lochtefeld 590’s sidewalls may prevent water from flowing over the sidewalls in the combined water ride, we do not agree that such water flow is required for Lochtefeld 530’s operation. Indeed, Lochtefeld 530 describes that flow in conditional terms—that it flows off the side of the ride surface “if lacking sufficient kinetic energy to flow over the ridgeline.” Ex. 1005, 6:6–8; *see* Pet. Reply 29. Moreover, Lochtefeld 530 does not describe such flow as a significant part of the invention. *Cf. Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App’x 755, 758 (Fed. Cir. 2015) (noting that the patent at issue described the disputed principle of operation as part of the invention, supporting limiting the principle to the “specific functionality” described). Stated otherwise, Lochtefeld 530’s ride does not depend on water flowing over the sides, though such flow is permitted at times. *See In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (holding that a principle of operation is not changed by departing from one embodiment when the overall functionality does not depend on that particular embodiment). Thus, based on the record, we disagree with Patent Owner’s argument that incorporating Lochtefeld 590’s sidewalls would change the principle of operation of Lochtefeld 530.

Next, Patent Owner argues that because Lochtefeld 530 does not include sidewalls following a turn as taught in Lochtefeld 590, using Lochtefeld 590's sidewalls in Lochtefeld 530 would not produce flow effects as in Lochtefeld 590. PO Resp. 36–38. Patent Owner's argument depends on the assertion that achieving flow effects with Lochtefeld 590's sidewall require the sidewall guide flow around a turn. We do not agree. At most, it could be said that Lochtefeld 590's "flow effects" result from water moving "up and across the sidewalls." Ex. 1004, 8:30–33. As discussed with Patent Owner's "principle of operation" argument above, Lochtefeld 530 describes that water may flow toward the sidewalls. Ex. 1005, 6:6–9. Thus, using Lochtefeld 590's curved sidewalls with Lochtefeld 530's ride surface would still result in water moving "up and across the sidewalls," producing the flow effects described by Lochtefeld 590. Accordingly, we find Lochtefeld 590's sidewalls do not *require* a turn to produce flow effects. Although Lochtefeld 590 uses its curved sidewalls with a turn in the flow, the record indicates that they would also produce flow effects when used with Lochtefeld 530's ride surface.

Having considered the record, we find Lochtefeld 590 teaches sidewalls that extend substantially upwardly, and that a skilled artisan had reason to incorporate them into Lochtefeld 530's ride such that it would include "a first curved sidewall extending substantially upwardly from an edge of the middle section" and "a second curved sidewall extending substantially upwardly from another edge of the middle section opposite the first curved sidewall."

In all other regards, we find Lochtefeld 530 teaches the limitations of claim 1 as discussed above regarding anticipation by Lochtefeld 530. *See*

Pet. 49–53; *see supra* at 40. Accordingly, having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 1 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

2. Claim 6

Claim 6 depends from claim 1 and further recites that “additional water flows from top portions of the first curved sidewall and the second curved sidewall toward the middle section.” Petitioner relies on Lochtefeld 590 as teaching this limitation. Pet. 54–55. Petitioner’s showing, however, does not address the claim term “additional” and fails to satisfy the language of the claim as we have construed it. *See supra* at 15. Accordingly, we conclude Petitioner has not proven by a preponderance of the evidence that claim 6 is unpatentable as obvious over Lochtefeld 530 and Lochtefeld 590.

3. Claim 7

Claim 7 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall have a substantially equal radius of curvature.” Petitioner relies on Lochtefeld 590 as teaching this limitation. Pet. 55, 43 (citing Ex. 1004, Fig. 1; Ex. 1002 ¶ 85). Patent Owner does not contest that Lochtefeld 590 teaches this limitation. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 7 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

4. *Claim 8*

Claim 8 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall have different radii of curvature.” Petitioner asserts that although neither Lochtefeld 530 nor Lochtefeld 590 teach this limitation, it would have been obvious “to modify their disclosures to provide two curved sidewalls with different radii of curvature, as it would simply change the flow pattern of the water on the ride.” Pet. 55 (citing Ex. 1002 ¶ 118). For the same reasons described above regarding obviousness of claim 7 over Lochtefeld 589—that the relative curvature of the sidewalls is not a significant aspect of the invention and was well within the knowledge of a skilled practitioner to vary—we agree with Petitioner. *See supra* at 32. We credit the testimony of Petitioner’s expert that varying the curvature would simply change the flow pattern of water on the ride. Ex. 1002 ¶ 118. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 8 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

5. *Claim 9*

Claim 9 depends from claim 1 and further recites that “the first curved sidewall and the second curved sidewall are curved about an axis parallel to water flow, and are connected by a substantially flat activity section.” Petitioner relies on Lochtefeld 590 as teaching this limitation. Pet. 55, 43–44 (citing Ex. 1004, Fig. 1; Ex. 1002 ¶ 87). Patent Owner does not contest that Lochtefeld 590 teaches this limitation. We agree with Petitioner (Pet. 43–44) that Lochtefeld 590’s walls curve upward about an axis parallel to water flow, as the axis of curvature follows the flow of water. Ex. 1004, Fig. 1. We credit the testimony of Petitioner’s expert in this

regard. Ex. 1002 ¶ 87. When modifying Lochtefeld 530 with the sidewalls of Lochtefeld 590, those sidewalls would be connected with Lochtefeld 530's substantially flat activity section. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 9 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

6. *Claim 10*

Claim 10 depends from claim 1 and further recites that “the rider exit comprises stairs.” Petitioner asserts that although neither Lochtefeld 530 nor Lochtefeld 590 teach this limitation, it would have been obvious “to use stairs with Lochtefeld 530's rider exit” because “they were both typical and preferred means of entry or exit for water ride attractions.” Pet. 55–56 (citing Ex. 1002 ¶ 120; Ex. 1006, 61). Patent Owner does not address the obviousness of this claim.

We credit the testimony of Petitioner's expert that a person of ordinary skill in the art would have known to use stairs with the rider exit. See Ex. 1002 ¶ 120. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

7. *Claim 11*

Claim 11 depends from claim 1 and further recites that “the water delivery section delivers water toward the activity section at a speed between about 10 miles per hour and about 20 miles per hour.” Petitioner asserts that this limitation was inherent in Lochtefeld 530 or “would have been an

obvious design choice in view of itself.” Pet. 56 (citing Ex. 1002 ¶¶ 121–122). Patent Owner does not address the obviousness of this claim.

As explained above regarding obviousness over Lochtefeld 589, we do not view this limitation as an “obvious design choice.” *See supra* at 33. We, however credit the testimony of Petitioner’s expert that a skilled artisan would find it obvious to select water speed as claimed in order to “1) create the necessary wave; 2) be fast enough so as to balance the rider’s downward movement in view of gravity; and 3) not be too fast so as to sweep the rider from the activity section.” Ex. 1002 ¶ 121. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 11 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

8. *Claim 12*

Claim 12 depends from claim 1 and further recites that “a depth of water in the middle section is between about 1 inch and about 12 inches.” Petitioner asserts that this limitation would have been obvious in light of Lochtefeld 530 disclosing a nozzle opening of “about 4 to 30 cm,” or 1.6 to 11.8 inches. Pet. 57. Petitioner asserts also that the sluice opening “provides general boundaries for the depth of the middle section.” *Id.* (citing Ex. 1002 ¶ 123). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 12 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

9. *Claim 13*

Claim 13 depends from claim 1 and further recites that “the activity section is constructed of fiberglass panels.” Petitioner asserts that Lochtefeld 590 teaches this limitation. Pet. 57, 45. Lochtefeld 590 discloses that “[t]he incline riding surface 20 can be constructed onto and above an existing swimming pool or the like, out of fiberglass, stainless steel or concrete.” Ex. 1004, 7:21–23. Thus, we find a skilled artisan would have understood fiberglass panels as one of “a finite number of identified, predictable solutions” for constructing the surface. See *KSR*, 550 U.S. at 421.

Petitioner asserts also that Lochtefeld 530 discloses that it was known that “ride surfaces for such attractions are generally fabricated from concrete and/or one or more premolded fiberglass sections.” Pet. 57 (quoting Ex. 1005, 1:65–2:3) (emphasis omitted). Though we accept that disclosure, Lochtefeld 530 contrasts it with the construction method taught in the reference (e.g., Ex. 1005, 2:24–26, 2:60–3:9) and Petitioner gives no reason a skilled artisan would have used the covered-concrete construction. Pet. 57. Accordingly, we do not rely on Lochtefeld 530’s disclosure.

Patent Owner does not address the obviousness of claim 13. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 13 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

10. *Claim 14*

Claim 14 depends from claim 1 and further recites that “the activity section is constructed of concrete covered by a soft padding.” Petitioner asserts that Lochtefeld 590 teaches this limitation. Pet. 57, 45–46 (citing

Ex. 1004, 7:21–28). Part of Lochtefeld 590’s teaching includes that “[t]he soft foam is furnished to provide cushioning support for safety.” Ex. 1004, 7:26–27. Thus, we find a skilled artisan would have understood concrete as one of “a finite number of identified, predictable solutions” for constructing the surface, and would have understood a foam covering to improve safety. *See KSR*, 550 U.S. at 421; Ex. 1002, ¶¶ 93, 126.

Petitioner asserts also that Lochtefeld 530 discloses that “a lubricious and/or soft coated foam material is typically adhered or bonded to the exposed ‘hard’ upper concrete or fiberglass support surface.” Pet. 57–58 (quoting Ex. 1005, 1:65–2:11) (emphasis omitted). For the same reasons stated above regarding obviousness of claim 13 over Lochtefeld 530 and Lochtefeld 590, we do not rely on Lochtefeld 530’s disclosure.

Patent Owner does not address the obviousness of claim 14. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 14 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

11. Claim 17

Claim 17 depends from claim 1 and further recites that “the activity section is about eight meters wide.” Petitioner relies on Lochtefeld 530’s disclosure of a ride surface approximately five meters wide. Pet. 58 (citing Ex. 1005, 5:45–48). Petitioner asserts that once Lochtefeld 590’s curved sidewalls were combined with the remainder of Lochtefeld 530’s activity section, the activity section “would be wider and closer to 8m.” Pet. 58–59 (citing Ex. 1002 ¶ 129). Patent Owner does not contest that Lochtefeld 530 teaches this limitation. We credit the testimony of Petitioner’s expert that the activity section formed from Lochtefeld 530’s middle section and

Lochtefeld 590's sidewalls would be about eight meters wide. Ex. 1002

¶ 129. Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 17 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

12. Claim 18

Claim 18 depends from claim 1 and further recites that “the middle section is about four meters wide.” In addition to the anticipatory disclosure we discuss above (*see supra* at 47), Petitioner asserts that this limitation is an “obvious design choice.” Pet. 59 (citing MPEP § 2144.04); Ex. 1002, ¶ 131. Patent Owner does not contest Petitioner's assertions in this regard. The record indicates no meaningful distinction that the width of the middle section could play, thus we find the width is nothing more than “window dressing.” *See Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1346 (Fed. Cir. 1984). Having considered the record, we conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 18 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

13. Claim 19

Claim 19 depends from claim 1 and further recites that “at least one of the first curved sidewall and the second curved sidewall is about two meters wide.” Petitioner admits that neither Lochtefeld 530 nor Lochtefeld 590 disclose this limitation, but argues that the change in size or proportion would have been obvious nonetheless. Pet. 59–60; Ex. 1002, ¶ 132. Patent Owner does not contest Petitioner's assertions in this regard. As with claim 18, we find the width of the curved sidewall does not affect the functional behavior of the claimed invention. Having considered the record, we

conclude Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 19 would have been obvious over Lochtefeld 530 and Lochtefeld 590.

14. Claims 2–5, 15, 16, and 20

For claims 2–5, 15, 16, and 20 Petitioner relies on its assertions regarding anticipation by Lochtefeld 530 described above. For the same reasons disclosed above regarding anticipation by Lochtefeld 530, we conclude Petitioner has shown by a preponderance of the evidence that claims 2–5, 15, 16, and 20 are unpatentable as obvious over Lochtefeld 530 and Lochtefeld 590.

G. PATENT OWNER’S MOTION TO EXCLUDE

Patent Owner moves to exclude the portion of Petitioner’s Reply that asserts Patent Owner’s expert took a position in his deposition that contradicted Patent’s Owner’s infringement positions in the district court. Paper 21. Because Patent Owner does not argue that Lochtefeld 589’s second sidewall is not “opposite” the first sidewall, this issue has no bearing on our decision. Accordingly, we deny the motion as moot.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that:

- a) claims 1–5, 8, 9, 12, 15–17, and 19 of the ’016 patent are unpatentable as anticipated by Lochtefeld 589;
- b) claims 1–5, 7–13, and 15–19 of the ’016 patent are unpatentable as obvious over Lochtefeld 589;

- c) claims 1–5, 15, 16, 18, and 20 of the '016 patent are unpatentable as anticipated by Lochtefeld 530; and
- d) claims 1–5 and 7–20 of the '016 patent are unpatentable as obvious over Lochtefeld 530 and Lochtefeld 590;

Petitioner has not, however, demonstrated that:

- a) claim 6, 11, or 20 is unpatentable as anticipated by Lochtefeld 589;
- b) claim 6, 14, or 20 is unpatentable as obvious over Lochtefeld 589;
- c) any of claims 1–20 is unpatentable as obvious over Lochtefeld 589 and Lochtefeld 590;
- d) claim 11 is unpatentable as anticipated by Lochtefeld 530; or
- e) claim 6 is unpatentable as obvious over Lochtefeld 530 and Lochtefeld 590.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–5 and 7–20 of U.S. Patent No. 8,088,016 patent are unpatentable;

FURTHER ORDERED that claim 6 of U.S. Patent No. 8,088,016 has not been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is denied as moot; 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.

Case IPR2016-01454

Patent 8,088,016 B2

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