

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UATP IP LLC,
Petitioner,

v.

SLICK SLIDE LLC,
Patent Owner.

PGR2024-00054
Patent 11,998,854 B1

Before MITCHELL G. WEATHERLY, JULIA HEANEY, and
BRIAN D. RANGE, *Administrative Patent Judges*.

HEANEY, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

UATP IP, LLC (“Petitioner”) filed a Petition to institute post-grant review of claims 1–17 and 22–28 of U.S. Patent No. 12,998,854 B1 (Ex. 1001, “the ’854 patent”). Paper 2 (“Petition” or “Pet.”). Slick Slide LLC (“Patent Owner”) filed a Preliminary Response. Paper 5 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply (Paper 6, “Reply”), and Patent Owner filed a Sur-reply (Paper 7, “Sur-reply”), limited to addressing issues of claim construction and discretionary denial under 35 U.S.C. § 325(d) raised in the Preliminary Response. Ex. 3001.

Institution of a post-grant review is authorized by statute when “the information presented in the petition . . . would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324(a) (2018). Upon consideration of the parties’ submissions and the evidence of record, we determine that Petitioner has demonstrated that it is more likely than not that at least one claim challenged in the Petition is unpatentable. Further, Patent Owner has not persuaded us that it is appropriate to exercise our discretion not to institute review. Accordingly, we institute a post-grant review of all claims and all grounds asserted in the Petition.¹

A. *Related Proceedings*

The parties indicate there are no related proceedings at the USPTO or in District Court. Pet. 95; Paper 4, 2.

¹ *Guidance on the Impact of SAS on AIA Trial Proceedings* (Apr. 26, 2018), <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>; *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

B. The '854 patent

The '854 patent describes a recreational slide, which includes a slide with a non-wet lubricated slide surface, and a ride vehicle with a fabric layer that forms a top surface configured to contact the rider and a mesh layer that forms a bottom surface. Ex. 1001, codes (54), (57). Figure 1 shows an example of the slide and ride vehicle of the '854 patent, and is reproduced below.

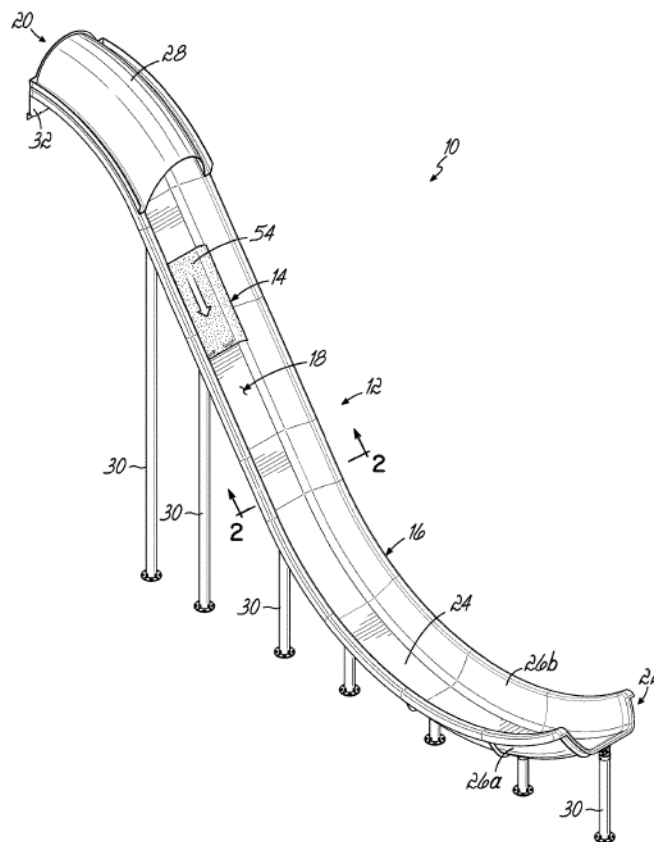


Figure 1 illustrates slide system 10, with slide 12 with slide body 16 and slide surface 18, and ride vehicle 14. *Id.* at 4:47–53. The patent describes that “slide body 16 may be formed of a fiber-reinforced plastic (FRP), such as fiberglass.” *Id.* at 4:53–54. Slide body 16 includes a dry lubricant material to improve the lubricity of the slide surface 18. *Id.* at 4:58–61. In addition, “ride vehicle 14 includes a mesh material that cooperates with the

slide surface 18 to achieve an improved, i.e., reduced, coefficient of friction therebetween,” which “may be within a range of between about 0.03 to about 0.2.” *Id.* at 5:37–46.

C. The Challenged Claims

Petitioner challenges claims 1–17 and 22–28 (“the challenged claims”) of the ’854 patent. Pet. 1. Claims 1, 22, and 25 are independent claims. Claim 1, reproduced below with Petitioner’s annotations, is illustrative of the subject matter of the challenged claims:

[1pre] A recreational slide system, comprising:

[1a-i] a slide

[1a-ii] including a slide body with a non-wet lubricated slide surface that extends between a top entrance of the slide and a bottom exit of the slide; and

[1b-i] a ride vehicle configured to support a rider down the slide,

[1b-ii] the ride vehicle including a top surface configured to contact the rider

[1b-iii] and a mesh layer that forms a bottom surface configured to contact the slide surface;

[1c] wherein a coefficient of friction between the mesh layer of the ride vehicle and the non-wet lubricated slide surface is within a range of between about 0.03 to about 0.2.

Ex. 1001, 12:13–23; Pet. vii (Claim Listing).

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Ground	Challenged Claim(s)	35 U.S.C. ²	Reference(s)/Basis
1A	1–4, 6, 7	§ 102	Phillips ³
1A	1–4, 6, 7	§ 103	Phillips
1B	1–4, 6, 7, 14–17, 22–28	§ 103	Phillips, WN0400 ⁴
2A	1–7	§ 103	Phillips, Fallgatter ⁵
2B	1–7, 14–17, 22–28	§ 103	Phillips, Fallgatter, WN0400
3A	8–13	§ 112(a)	Enablement
3B	5, 26	§ 112(b)	Indefiniteness

Pet. 11.

II. ANALYSIS

A. Post-grant Review Eligibility of the '854 Patent

We first determine whether the '854 patent is eligible for post-grant review. The post-grant review provisions set forth in section 6(d) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) (“AIA”), apply only to patents subject to the first-inventor-to-file provisions of the AIA. *See* AIA § 6(f)(2)(A) (The provisions of Section 6(d) “shall apply only to patents described in section

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. As discussed above, we apply the AIA versions of the statutory bases for unpatentability.

³ U.S. Pat. No. US 7,896,779 B1, to Phillips, issued Mar. 1, 2011 (Ex. 1004).

⁴ WN0400 – 400 Micron Nylon Mesh 45% Open Area, Industrial Netting product page, archived by Internet Archive Wayback Machine on July 28, 2021 (Ex. 1006)

⁵ US Patent Pub. No. 2023/0129814 A1 to Fallgatter et al., published Apr. 27, 2023 (Ex. 1005).

3(n)(1)”). Patents subject to the first-inventor-to-file provisions are those that issue from applications “that contain[] or contained at any time . . . a claim to a claimed invention that has an effective filing date as defined in section 100(i) of title 35, United States Code, that is on or after” March 16, 2013. AIA § 3(n)(1). Additionally, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be).” 35 U.S.C. § 321(c).

The effective filing date of an application for a patent on an invention is “the filing date of the earliest application for which the . . . application is entitled, as to such invention, to a right of priority under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).” 35 U.S.C. § 100(i)(1)(B). In the event that the application is not entitled to any earlier filing date or right of priority, the effective filing date is “the actual filing date of . . . the application for the patent containing a claim to the invention.” 35 U.S.C. § 100(i)(1)(A).

The ’854 patent issued on June 4, 2024 from U.S. Application No. 18/349,347 (“the ’347 application,” filed July 10, 2023), which claims the benefit of U.S. Provisional Application No. 63/381,818, filed November 1, 2022). Ex. 1001, codes (21), (22), (45), (60), 1:6–9. Therefore, the filing date of the earliest application for which the ’854 patent claims a right of priority is after March 16, 2013. Accordingly, the ’854 patent is eligible for post-grant review.

B. Level of Ordinary Skill in the Art

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.*

Both parties support their positions as to the level of ordinary skill in the art with declarations by their respective experts. Petitioner submits the declaration of Youjiang Wang, Ph.D. Ex. 1003. Patent Owner submits declarations from Stephen Spiegelberg, Ph.D (Ex. 2026) and Jon Rust, Ph.D. (Ex. 2027).

Petitioner argues a person of ordinary skill in the art at the time of the invention “would have had at least (1) a Bachelor’s degree in mechanical engineering, materials science, or a related field, with (2) 1–2 years of experience in manufacturing, product design, or a related field, or equivalent research or professional experience.” Pet. 10 (citing Ex. 1003 ¶¶ 29–48).

Patent Owner argues a person of ordinary skill in the art at the time of the invention “would have had at least (1) a Bachelor’s degree in engineering, materials science, or a related field, with (2) experience in textile design, engineering, or fiber science.” Prelim. Resp. 21 (citing Ex. 2026 ¶¶ 38–45, Ex. 2027 ¶¶ 33–40). Patent Owner further argues

“[e]xperience in textile engineering and fiber science is necessary for understanding the distinctions between mesh and sheeting, and how those interact with other materials when in contact with them, as well as mechanical properties such as wear,” and “for understanding the manner in which materials with interstices are affixed to other materials, including with adhesive, and the impact the attachment mechanism has on the interaction with other materials when in contact with them.” *Id.* (citing Ex. 2026 ¶ 44, Ex. 2027 ¶ 40). Patent Owner further argues a person of ordinary skill in the art “would also require at least 5 years of measurement and analysis experience in the field of coefficient of friction.” *Id.* (citing Ex. 2026 ¶ 45).

The parties appear to agree as to the education level of a person of ordinary skill, but disagree as to the type and amount of experience. In determining the appropriate level of skill in the art, we consider the following factors: educational level of the inventor; the types of problems encountered in the art and prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; educational level of active workers in the field; and the patent’s purpose. *Best Medical Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022). None of the parties’ declarants provides a specific analysis of these factors as they relate to the ’854 patent. *See generally* Exs. 1003, 2026, 2027.

On this record, we do not find Patent Owner’s proposed experience level of at least five years in measurement and analysis of coefficient of friction to be supported. As to the necessity of experience in textile engineering and fiber science, Patent Owner’s position, although not supported by declarant analysis of the factors listed above, is consistent with the disclosure of the ’854 patent, which describes features of a mesh layer in

textile and fiber terms. *See e.g.*, Ex. 1001, 10:17–11:14, 12:65–13:8, 14:20–24. On the whole, however, we do not discern on this record how specific experience in textile engineering and fiber science of a person of ordinary skill would materially alter the outcome at this stage of the proceeding.

For purposes of this decision only, we apply Patent Owner’s proposed definition of a person of ordinary skill in the art, except for the requirement of five years of experience in measurement and analysis of coefficient of friction. The level of skill in the art remains an open issue in this proceeding. Further submissions by the parties may include argument and evidence that would assist in the resolution of this issue at the close of trial.

C. Claim Construction

We apply the same claim construction standard that would be used to construe claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under that standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (*en banc*). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner contends “no formal claim construction is necessary in this proceeding.” Pet. 10; Reply 1, 4. Patent Owner contends the terms “mesh

layer” and “coefficient of friction” require construction. Prelim. Resp. 14–16; Sur-reply 2–5.

We have considered the parties’ arguments and discuss them below with regard to each of the terms Patent Owner contends should be construed. Because our determination that Petitioner demonstrates at least one challenged claim meets the threshold for institution (*see SAS Inst.*, 138 S. Ct. at 1359–60) is not based on construing the term “mesh layer” or “coefficient of friction,” we determine we need not construe either claim term at this stage of the proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *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.”)). As further discussed below, we invite the parties to address claim construction at trial.

1. Mesh layer

Patent Owner contends a person of ordinary skill in the art “would understand from the specification that ‘mesh layer’ means a layer of mesh material which is characterized by open spaces between threads.” Prelim. Resp. 15 (citing Ex. 2006; Ex. 2004; Ex. 2026 ¶ 92; Ex. 2027 ¶¶ 58, 62). Patent Owner argues the specification supports this construction by describing a mesh layer as formed of mesh material 46 and describing the mesh material as follows:

the mesh material 46 includes a number of warp threads 70 which extend generally perpendicular to a number of weft threads 72 to form a plurality of interstitial openings 74 therebetween;

the interstitial openings 74 may be within a range of between about 45 micron to about 1200 micron, for example, and the open

area of the mesh material 46 may be within a range of between about 25% to about 65%, for example.

Id. (citing Ex. 1001, 9:65–66, 10:19–25, 10:30–35). Patent Owner also relies on the following portion of the specification:

In one aspect, the mesh layer may include a plurality of interstitial openings that define an open area of the mesh layer. The open area of the mesh layer may be within a range of between about 35% to about 50%.

Sur-reply 5 (citing Ex. 1001, 2:50–51). Patent Owner further directs us to the language of claim 22 which provides in part:

[t]he mesh layer includes a plurality of interstitial openings that define an open area of the mesh layer, wherein the open area of the mesh layer may be within a range of between about 35% to about 50%.

Id. (citing Ex. 1001, claim 22). In addition, Patent Owner argues the specification uses “mesh layer” consistently with the definition understood by a person of ordinary skill in the art: “any fabric (woven, knit, crochet, lace, or knotted), which is characterized by open spaces [between the yarns].” Prelim. Resp. 15 (quoting The Fairchild Books Dictionary of Textiles, which provides the definition (Ex. 2006)).

We determine the record at this stage of the proceeding supports Patent Owner’s proposed construction, but with the caveat that Patent Owner has not addressed whether a person of ordinary skill’s understanding of a “mesh layer” would additionally include the size of the open spaces between the threads. As Patent Owner notes, two passages in the specification and one independent claim (claim 22) refer to the open area of the mesh as certain percentage ranges, i.e., 25% to 65% and 35% to 50%. *See also* Ex. 1001, 13:6–8 (“the open area of the mesh layer is within a range of between

about 35% to about 50%). We further note that the specification provides additional description with regard to the embodiment of Figure 5:

The open area of the mesh material 46 refers to the total percentage of open space or voids in the mesh structure. It represents the portion of the mesh material 46, and the bottom surface 56 of the ride vehicle 14, that is not occupied by solid material such as threads.

Ex. 1001, 10:46–50. The specification goes on to provide the range of diameters of the warp and weft threads in the mesh material of Figure 5 and their density, measured in threads per centimeter of mesh material. *Id.* at 11:10–14. Finally, claim 25 describes a mesh layer that “includes a plurality of weft threads each having a thread diameter within a range of between 0.1 mm to 0.6 mm and a plurality of warp threads each having a thread diameter within a range of between 0.1 mm to 0.6 mm.” *Id.* at 14:19–23; *see also id.* at 2:37–46, 3:25–29.

At trial, the parties should address these portions of the specification and claim language of the '854 patent, and any other intrinsic evidence they contend is relevant to determining the meaning of “a mesh layer” to a person of ordinary skill in the art. Specifically, the parties should assert their arguments and evidence with regard to whether a person of ordinary skill in the art would understand that the open spaces between threads of a mesh material have any limitations as to dimension or percentage of surface area, with a focus on any lower limit below which the material would not be considered a mesh material. Claim construction will be determined at the close of all the evidence and after any hearing.

2. Coefficient of friction

Patent Owner contends a “POSITA would understand from the specification that ‘coefficient of friction’ means the frictional force between

two surfaces to the normal force pressing the surfaces together, as determined using the ASTM D1894 test method.” Prelim. Resp. 16 (citing Ex. 2026 ¶¶ 63–66).

Petitioner argues there is no need to construe “coefficient of friction” and that the ’854 patent specification does not provide a definition of coefficient of friction requiring that it be determined by a specific ASTM standard. Reply 2–3.

We agree with Petitioner that the ’854 patent specification does not include clear and explicit lexicography or a disclaimer that would support requiring “coefficient of friction” to be determined by a specific ASTM test method. The portion of the specification Patent Owner asserts as a definition of “coefficient of friction” (*see* Ex. 1001, 11:31–42) is a description of an embodiment; we find it does not express patentee intent to redefine the term. Further, the statement that “the coefficient of friction ... *may* be determined using the ... ASTM D1894 standard test method” (*id.* at 11:32–35) indicates that use of that specific test method is optional. Accordingly, in the absence of patentee lexicography or disavowal, we do not limit the scope of the term “coefficient of friction” to require that it be measured by a specific ASTM standard. *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016) (“Absent lexicography or disavowal, we do not depart from the plain meaning of the claims.”); *In re Am. Acad. Of Sci. Tech Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) (“We have cautioned against reading limitations into a claim from the preferred embodiment described in the specification, even if it is the only embodiment described, absent clear disclaimer in the specification.”).

We note that the '854 patent specification sets forth a definition for the coefficient of friction between the surfaces of the mesh material and the slide surface. Ex. 1001, 4:38–46. As stated above, however, we do not expressly construe any claim term at this stage of the proceeding. Should the parties address the construction of “coefficient of friction” at trial, we will make a determination after the close of evidence and any hearing.

D. Principles of Law

A claim may be invalid as anticipated by a prior art reference if “each and every limitation is found either expressly or inherently in a single prior art reference.” *Sanofi–Synthelabo v. Apotex, Inc.*, 470 F.3d 1368, 1375 (Fed. Cir. 2006) (internal quotation marks omitted). Anticipation under § 102 may be established by showing, as a matter of fact, that all elements arranged as specified in a claim are disclosed within the four corners of a reference, either expressly or inherently, in a manner enabling one skilled in the art to practice an embodiment of the claimed invention without undue experimentation. *See ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1344 (Fed. Cir. 2012).

A claim is unpatentable under 35 U.S.C. § 103 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.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, evidence

such as commercial success, long felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see KSR*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”).

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. Reaching this conclusion, however, requires more than merely showing that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness additionally requires that a person of ordinary skill at the time of the invention “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.*

E. Overview of Asserted Prior Art

1. Phillips (Ex. 1004)

Phillips, titled “Sliding Exercise Apparatus and Recreational Device,” describes “an exercise apparatus and recreational system composed of a plurality of interconnecting parts which include a slide having a low friction, durable top layer upon which a user can traverse in both a wet or dry condition.” Ex. 1004, code (54), 1:13–17.

Figure 1, reproduced below, shows a slide embodiment of Phillips. *Id.* at 3:40–41.

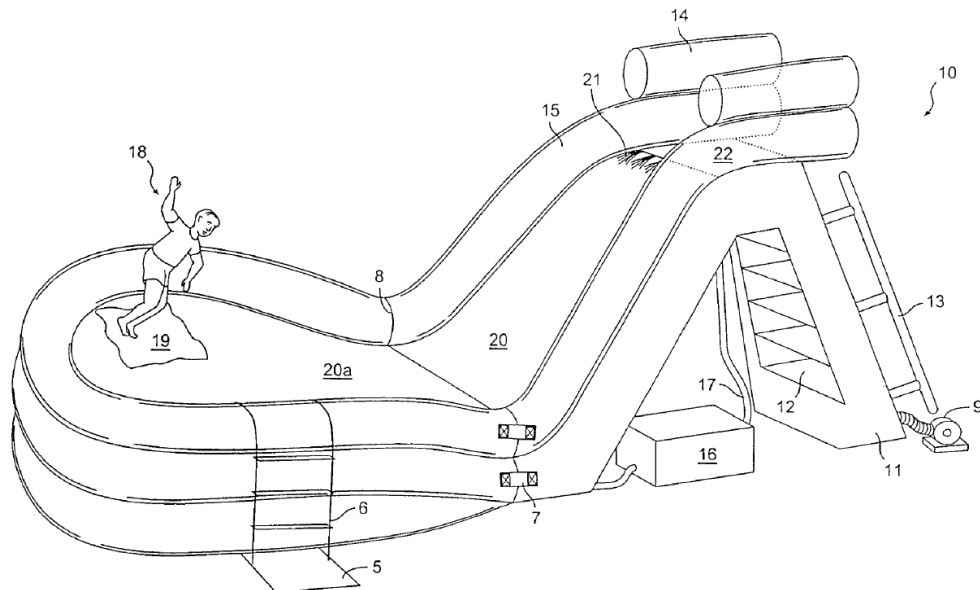


Figure 1 shows slide 10, with top surface 20, and membrane 19. *Id.* at 4:15–46. Phillips describes that the membrane and top surface “can each be composed of low friction high durable material such as a member selected from the group consisting of nylon, Teflon, sailcloth, Dacron, vinyl, artificial turf, synthetic carpet and polyester resins.” *Id.* at 4:43–46.

2. WN0400 (Ex. 1006)

WN0400 is a product specification of a “400 micron Nylon Mesh” with “45% open area,” from Industrial Netting. Ex. 1006, 1. The product description lists properties of the mesh such as “Monofilament Nylon 6 fiber 42 threads per inch . . . 400 micron hole opening.” *Id.*

3. Fallgatter (Ex. 1005)

Fallgatter is a patent publication titled “Portable Dry Recreational Slide.” Ex. 1005, (code 54). Fallgatter “discloses aspects of a portable dry recreational slide that can be readily used in a broad range of locations.” *Id.*

¶ 4.

Figure 1, reproduced below, shows an example of Fallgatter's slide.

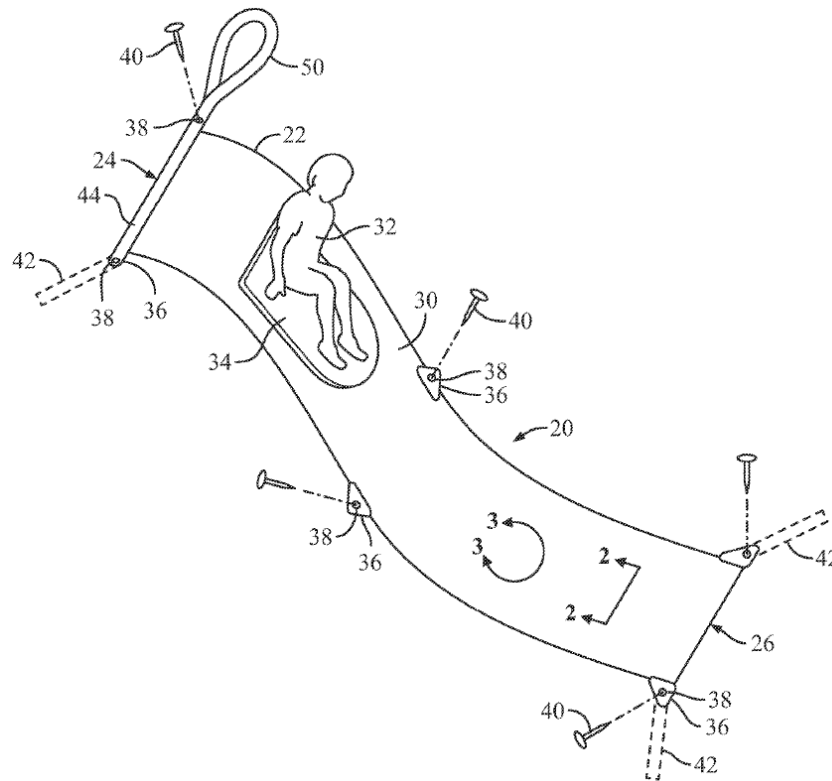


Figure 1 shows dry slide 20, with elongated slide body 22, sliding surface 30, rider 32, vehicle 34, anchoring structures 36, grommets 38, flat-top stakes 40, and elongated straps 42. *Id.* ¶¶ 38–39.

Fallgatter discloses that its “slide body is made of a low-friction textile, most preferably a textile substrate such as a woven nylon, woven polyester or non-woven polyethylene with a low friction coating such as a silicone coating.” *Id.* ¶ 36. “The coating defines the sliding surface upon which riders may slide, and preferably has a coefficient of friction of about 0.25 or less.” *Id.* Fallgatter describes that the bottom surface of rude vehicle 34 “can be coated with a low-friction coating.” *Id.* ¶ 45.

F. Alleged Anticipation and Obviousness Based on Phillips (Ground 1A)

Petitioner contends Phillips anticipates claims 1–4, 6, and 7 or renders them obvious. Pet. 16–36. Patent Owner disagrees. Prelim. Resp. 33–48. We focus our analysis on the disputed limitations of claim 1.

Claim 1 recites a recreational slide system and requires a ride vehicle “including ... a mesh layer that forms a bottom surface configured to contact the slide surface.” Ex. 1001, 12:17–19. The parties dispute whether Phillips discloses a mesh layer as the bottom surface of a ride vehicle, and whether a person of ordinary skill would have been motivated to use a mesh layer.

1. Mesh layer

Petitioner argues Phillips discloses the bottom surface of a ride vehicle formed from a low-friction sheeting material such as “nylon, Teflon, sailcloth, Dacron, [and] vinyl.” Pet. 23 (citing Ex. 1004, 4:43–46, 5:27–35, 7:7–23, 8:40–43, 8:49–61, 9:9–13). Petitioner further argues Phillips discloses low-friction sheeting material can be applied to the bottom surface with adhesive, and that the sheeting material provides a mesh layer. *Id.* at 24. Petitioner argues a person of ordinary skill would have understood that sailcloth is a woven fabric material that provides a mesh, and that nylon and Dacron are woven fabrics that provide low friction surfaces in a mesh form. *Id.* at 24–25. Petitioner further argues a person of ordinary skill in the art

would have predictably implemented the bottom of the vehicle with a mesh in accordance with Phillips’ suggestions to form the bottom surface of the ride vehicle from a ‘low friction high durable material.’ . . . Based on Phillips description of sailcloth, a POSITA would have been prompted to utilize a woven material, such as . . . nylon. . . . Accordingly, a POSITA plainly would have been prompted to use a ‘nylon’ mesh material, based on Phillips’ teachings, rendering obvious [limitation] 1b-iii.

Id. at 25.

Patent Owner argues a person of ordinary skill would not consider the sheeting material or membrane disclosed in Phillips to be a mesh material because sheeting does not allow for open spaces between threads. Prelim. Resp. 34–35. Patent Owner further argues Petitioner fails to show how Phillips’s disclosure of nylon, sailcloth, and Dacron (among other materials) as a sheeting material would lead a person of ordinary skill to understand any of those materials to be a mesh material. *Id.* at 35. Patent Owner further argues a person of ordinary skill reading Phillips would understand sailcloth, nylon, and Dacron would not constitute a mesh. *Id.* at 36. Patent Owner further argues Petitioner fails to show motivation to substitute a mesh layer for Phillips’s sheeting material, and a reasonable expectation of success in making that substitution. *Id.* at 40–46.

After considering the parties’ arguments and evidence, we have concerns about the sufficiency of Petitioner’s showing that a person of ordinary skill would consider the low friction sheeting materials described in Phillips to be a mesh material. Petitioner does not point to an express disclosure in Phillips of a mesh material. In the absence of express disclosure of mesh material, Petitioner relies on definitions for sailcloth, mesh, and fabric as set forth in Dictionary.com, which Dr. Wang asserts as evidence that a person of ordinary skill would have understood that a “mesh” fabric includes a woven fabric with holes between the woven threads. Ex. 1003 ¶ 100 (citing Exs. 1034, 1037, 1038). Thus, Dr. Wang asserts that Phillips’s disclosure of sailcloth would have been understood by a person of ordinary skill to be a mesh material (*id.*), and based on the

Industrial Netting⁶ reference, asserts that for some fabrics like sailcloth, “the holes formed by the woven threads may be very small in size.” *Id.* (citing Ex. 1007, 1 (describing fine mesh woven fabrics with apertures as small as 50 micron)). By similar reasoning, Dr. Wang asserts that Phillips’s listing of nylon and Dacron as examples of sheeting material also would have been understood by a person of ordinary skill to be a disclosure of mesh material. *Id.* ¶ 101 (citing Exs. 1007, 1033, 1034).

Dr. Rust has a different understanding of Phillips’s disclosure. Dr. Rust asserts that Phillips repeatedly and consistently refers to a low friction sheeting layer and a membrane. Ex. 2027 ¶ 114. According to Dr. Rust, membranes and sheeting materials are “substantially without interstices or open spaces in the structure.” *Id.* ¶ 112. Thus, Dr. Rust asserts that Phillips’s listing of sailcloth, nylon, and Dacron as examples of a sheeting material and a membrane (*id.* ¶¶ 112–113), would not have suggested to a person of ordinary skill that Phillips uses mesh materials. *Id.* ¶ 115.

Based on the present record, our preliminary view is that Patent Owner and Dr. Rust’s position more closely aligns with Phillips’s disclosure. Phillips’s repeated reference to a “low friction, durable sheeting layer” or “membrane in the form of low friction durable sheeting material” does not mention any threads in those materials, or any openings between threads. Petitioner and Dr. Wang’s reasoning conflates Phillips’s disclosure of membranes and sheeting material with mesh, merely on the basis that

⁶ “Nylon, Polyester or Polypropylene Plastic Mesh,” Industrial Netting product page, archived by Internet Archive Wayback Machine on June 21, 2021 (Ex. 1007).

some of the examples of sheeting materials (sailcloth, nylon, Dacron) are woven, and mesh is also woven. On this preliminary record we find more persuasive Patent Owner's argument that a person of ordinary skill in the art would not have understood Phillips's disclosure of low friction sheeting material to suggest a mesh material. Our final interpretation of "mesh layer," however, will be based on the full trial record.

We further note that although we have discussed testimony of both parties' declarants in connection with this challenge, the preliminary record before us presents insufficient basis to discount the testimony of either of them. Our determination on the full trial record would benefit from their cross-examination.

2. Obviousness

Based on the current record, we also have concerns about the sufficiency of Petitioner's showing that a person of ordinary skill would have been prompted by Phillips's suggestion to form the bottom surface of the ride vehicle from a low friction material, and Phillips's examples of several woven materials, to use a mesh material.

Petitioner's obviousness contention rests on the premise that Phillips discloses a mesh material. As discussed above, Petitioner has not sufficiently established that premise. Further, Dr. Wang's assertion that a person of ordinary skill would have been motivated to implement the bottom surface of Philips's ride vehicle with a mesh is conclusory; for example, he does not explain why Phillips's disclosure of sailcloth and suggestion to provide low friction would have prompted a person of ordinary skill to try using woven nylon mesh. *See* Ex. 1003 ¶ 103.

3. Conclusion

We determine Petitioner has not sufficiently established that claim 1 is unpatentable as anticipated by Phillips or as obvious in view of Phillips alone. We nonetheless institute on these grounds pursuant to *SAS*, 138 S. Ct. at 1359–60. *See also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018); 37 C.F.R. § 42.108(a).

G. Alleged Obviousness Based on Phillips and WN0400 (Ground 1B)

Petitioner contends the combination of Phillips and WN0400 renders claims 1–4, 6, 7, 14–17, and 22–28 obvious. Pet. 36–56. Patent Owner disagrees. Prelim. Resp. 49–53. We focus our analysis on the rationale for combining the references and disputed limitations of claim 1.

1. Motivation to combine and mesh layer

Petitioner argues a person of ordinary skill in the art would have been motivated to use WN0400’s 400-micron nylon mesh as the low friction bottom surface of Phillips’s ride vehicle, for multiple reasons. Pet. 37–42. Petitioner argues a person of ordinary skill would have recognized WN0400’s nylon mesh as providing low friction because Phillips describes using woven nylon, and it was a known durable and low friction material. *Id.* at 38–39 (citing Ex. 1011, 5). Petitioner argues mesh fabrics with relatively larger apertures between strands were known to have an advantageously lower coefficient of friction compared to more tightly woven fabrics (*id.* at 40, citing Ex. 1010) and a person of ordinary skill would have understood the advantage of sliding with a more open weave fabric. *Id.* Petitioner further argues monofilament mesh fabrics were known to provide an advantage in sliding over surfaces, and a person of ordinary skill would have been motivated to use WN0400’s monofilament mesh for this advantage.

Id. at 41 (citing Ex. 1007, 1). Petitioner further argues a person of ordinary skill would have understood a variety of suitable nylon meshes could be used as a bottom surface and would have sought a mesh that had large apertures between threads, such as WN0400. *Id.* at 41–42. Finally, Petitioner argues a person of ordinary skill would have applied known techniques (WN0400’s nylon mesh) to a known device (Phillips’s slide system) to yield predictable results with a reasonable expectation of success because Phillips already disclosed nylon mesh material was appropriate for such a system. *Id.* at 42.

Patent Owner argues Petitioner fails to demonstrate a person of ordinary skill would have been motivated to incorporate a mesh layer, and specifically WN0400, into the bottom of Phillips’s ride vehicle with a reasonable expectation of success, for various reasons. Prelim. Resp. 48–53.

After considering the evidence and arguments presented by both parties, we determine on this preliminary record that Petitioner sufficiently sets forth a reasonable explanation for a person of ordinary skill in the art to have combined the teachings of Phillips and WN0400 to arrive at the claimed subject matter with a reasonable expectation of success. We address Patent Owner’s arguments below.

Patent Owner argues a person of ordinary skill would not have been motivated to implement the bottom of Phillips’s ride vehicle with a mesh material, because Phillips does not disclose mesh and teaches away from it. Prelim. Resp. 49. We do not agree that the passage of Phillips describing the use of nylon netting to attach sliding elements (Ex. 1004, 9:50–55) “explicitly distinguishes the low-friction, durable sheeting material from ‘nylon netting.’” *Id.* at 36, 49. In our view, Phillips’s description of

attaching various sliding elements is part of a specific embodiment for creating larger slides (Ex. 1004, 9:50–55) and unrelated to its list of example materials for the slide and ride vehicle surfaces (*id.* at 4:45–46). Further, we do not agree that the absence of nylon netting from the list of examples of sheeting material (Ex. 1004, 4:45–46) teaches away from using mesh material for the bottom of the ride vehicle. *Id.* at 49. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (prior art did not “teach away” because such disclosure did not criticize, discredit, or otherwise discourage the solution claimed).

Patent Owner argues Petitioner fails to explain how a person of ordinary skill would have implemented the bottom of Phillips’s ride vehicle with a mesh. Prelim. Resp. 49–50. According to Patent Owner, modifying the bottom of the ride vehicle from a sheeting material to a mesh layer would require: evaluating a large variety of mesh configurations for properties such as durability; determining how to affix a mesh layer to the ride vehicle while considering properties such as surface morphology; and optimizing all of the choices. *Id.* On this preliminary record, we do not agree with Patent Owner that Petitioner’s explanation is inadequate. Dr. Wang asserts that a person of ordinary skill would have been familiar with properties of nylon, including durability and coefficient of friction, and would have been able to find commercially available nylon mesh as described in WN0400. Ex. 1003 ¶ 136. He also explains it would have been within the level of ordinary skill to select a mesh fabric based on desired frictional resistance. *Id.* ¶ 137. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (“[A] prior art reference must be ‘considered together with the knowledge of one of ordinary skill in the pertinent art.’”).

We do not agree with Patent Owner’s assertion that “the references relied upon by Petitioner and Dr. Wang decisively demonstrate that there would be no reasonable expectation of success.” Prelim. Resp. 51. Our view on this preliminary record is that Kothari⁷ supports Petitioner’s contention as to reasonable expectation of success, because it shows that an ordinarily skilled artisan would have understood that variation in mesh size of monofilament fabrics affects their frictional resistance. Ex. 1009, 1, 4. Additionally, knowledge that differences in frictional forces between fabrics woven from filament yarns is dependent on morphology of the fabrics and the rubbing direction (Ex. 1010, 1) also supports a reasonable expectation of success. See Ex. 1003 ¶ 251. We have considered Dr. Spiegelberg’s assertion that Kothari would not have provided adequate guidance to select a mesh coarseness to achieve a low coefficient of friction, and would have added confusion as to which direction to move in terms of coarseness. Ex. 2026 ¶ 198. At this stage of the proceeding, we do not view Dr. Spiegelberg’s assertions as undermining Petitioner’s showing, particularly where obviousness requires an expectation of success only to be reasonable, not absolute. See *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1364 (Fed. Cir. 2007) (simply because the properties of a compound must be verified through testing does not mean that the compound satisfies the test for patentability “since the expectation of success need only be reasonable, not absolute”). We determine on this preliminary record that Petitioner

⁷ V.K. Kothari et al., *Assessment of frictional properties of some woven fabrics*, Indian Journal of Fibre and Textile Research (September 1994) 151–155 (Ex. 1009)

makes a sufficient showing, although the record will benefit from cross-examination of both declarants.

2. Coefficient of friction

Petitioner argues the materials Phillips describes for its slide surface and ride vehicle bottom provide a coefficient of friction within the claimed range, and that even though Phillips does not expressly quantify a range of coefficients of friction, it states its slide system achieves “low friction.” Pet. 26–27. According to Petitioner, a person of ordinary skill in the art would have recognized Phillips’s description of materials for the contacting surfaces of the slide and ride vehicle, e.g., nylon, Teflon, and sailcloth, as disclosing frictional coefficients within the claimed range. *Id.* (citing Exs. 1021, 1026, 1027). Petitioner asserts that the materials described by Phillips are the same as those in the ’854 patent specification, i.e., a Teflon slide surface and nylon ride vehicle bottom; Petitioner argues that this establishes a prima facie case of anticipation or obviousness. *Id.* at 28 (citing *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977)). Petitioner also asserts the background section of the ’854 patent specification acknowledges that prior art dry slides achieved a frictional coefficient overlapping the claimed range: “The coefficient of friction between a rider (or ride vehicle) and the slide surface of a typical dry slide is often within a range of between 0.15 to 0.3, and is typically about 0.25.” Ex. 1001, 1:48–51. *See* Pet. 28–29.

Patent Owner argues Petitioner’s evidence is insufficient because coefficient of friction “is not merely a property of the interaction between the two surface materials” but rather depends on the morphology of the surfaces and how the coefficient of friction testing is performed. Prelim.

Resp. 38. Patent Owner further argues Petitioner fails to demonstrate the coefficient of friction between the mesh layer of the ride vehicle and slide surface would be within the claimed range, because Dr. Wang relies on data that does not comply with ASTM D1894 test methods. Prelim. Resp. 50–51.

As discussed above, we do not construe “coefficient of friction” as requiring that it be measured by a specific ASTM test method. To the extent Patent Owner’s arguments are based on that construction, we do not find them persuasive. We focus our discussion on the other aspects of Petitioner’s showing disputed by Patent Owner.

After considering the parties’ arguments and evidence, we determine on this preliminary record that Petitioner sufficiently shows Phillips discloses a coefficient of friction within the claimed range. Although Phillips does not expressly state a numerical range for coefficient of friction, it uses materials that the ’854 patent also lists as example materials for the slide and bottom surface of the ride vehicle, i.e., Teflon and nylon. Petitioner’s showing that Phillips uses the same materials as the ’854 patent, in addition to evidence that a person of ordinary skill in the art would understand their frictional coefficients based on published data (Exs. 1021, 1026, 1027) establishes a reasonable basis to expect that Phillips’s frictional coefficient between the surfaces of the slide and bottom of the ride vehicle would be within the range recited in claim 1. *In re Best*, 562 F.2d at 1255. The ’854 patent does not describe the claimed range of frictional coefficients as critical or achieving unexpected results relative to the known range set forth in the background section of the specification (i.e., “between 0.15 to 0.3, and [] typically about 0.25” (Ex. 1001, 1:48–51)), nor has Patent Owner directed us to such evidence.

Patent Owner's argument that the coefficient of friction data asserted by Petitioner is unreliable does not persuasively undermine Petitioner's position. *See* Prelim. Resp. 38. Although Patent Owner and Dr. Spiegelberg criticize Dr. Wang's reliance on data that does not account for variables such as surface morphology and how the coefficient of friction testing is performed (Ex. 2026 ¶ 172), some of the evidence addresses those variables (Ex. 1027, 1) and nonetheless reports a kinetic frictional coefficient for Teflon-Teflon within the claimed range. Ex. 1027, 4; *see* Ex. 1003 ¶ 107. The range of frictional coefficients in claim 1 is quite broad, and all of the evidence asserted by Patent Owner (Exs. 1021, 1026, 1027) for Teflon/nylon, nylon/nylon, and Teflon/Teflon lies within the claimed range, even though it does not account for variability due to surface morphology or test method.

3. Conclusion

Based on the foregoing, we determine on this preliminary record that Petitioner has sufficiently established claim 1 is unpatentable based on the combination of Phillips and WN0400.

H. Alleged Obviousness Based on Phillips and Fallgatter (Ground 2A)

Petitioner contends the combination of Phillips and Fallgatter renders claims 1–7 obvious. Pet. 56–75. Patent Owner disagrees. Prelim. Resp. 54–58.

Petitioner's proposed combination of Phillips and Fallgatter is based on Phillips's teaching of a dry, low friction slide for use with a fabric bottom ride vehicle. Pet. 58–59. As discussed above, at this stage of the proceeding we are not persuaded by Petitioner's contention that Phillips discloses a mesh layer on the bottom surface of the ride vehicle. Accordingly,

Petitioner has not sufficiently established that claim 1 is unpatentable based on the combination of Phillips and Fallgatter. Nonetheless, because Petitioner has demonstrated it is more likely than not that at least one claim of the '854 patent is unpatentable, we include this ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60.

I. *Alleged Obviousness Based on Phillips, Fallgatter, and WN0400 (Ground 2B)*

Petitioner contends the combination of Phillips, Fallgatter, and WN0400 renders claims 1–7, 14–17, and 22–28 obvious. Pet. 75–86. Patent Owner disagrees. Prelim. Resp. 58. We focus on the disputed limitations of claim 1, as a representative claim.

Petitioner argues a person of ordinary skill would have been motivated to implement a combination of Phillips, Fallgatter, and WN-0400 for the same reasons discussed above for the Phillips-WN0400 combination. Pet. 75–80. Petitioner relies on the disclosures of Phillips and WN0400 described above as teaching a mesh layer on the bottom surface of a ride vehicle. *Id.* at 80–81. Petitioner relies on the disclosures of Phillips and Fallgatter described above as teaching a coefficient of friction between the mesh layer and slide surface within the claimed range. *Id.* at 82.

Patent Owner argues Petitioner fails to demonstrate a person of ordinary skill would have been motivated to combine Phillips and Fallgatter, and Phillips and WN0400, for the reasons discussed above. Prelim. Resp. 58.

Based on the foregoing, we determine on this preliminary record that Petitioner has sufficiently established claim 1 is unpatentable based on the combination of Phillips, WN0400, and Fallgatter.

J. Objective Indicia of Nonobviousness

Patent Owner argues the Petition is defective because it fails to address objective indicia of nonobviousness such as commercial success, copying, and industry acclaim. Prelim. Resp. 32. Patent Owner's argument about objective indicia relies on a single exhibit (Ex. 2001).

We have reviewed the exhibit that Patent Owner cites. Ex. 2001. The three pages titled "Indoor Slide Park" that appear to be printed from Petitioner's website do not demonstrate commercial success, and do not include sufficient information as to the materials and construction of the slide and vehicle to analyze any copying, let alone whether copying would have a nexus with the challenged claims. *See id.* Patent Owner's further assertions as to copying and industry acclaim (*see* Prelim. Resp. 4–5) are unsupported attorney argument.

Based on the foregoing, we do not discern evidence with the kind of specificity required for objective indicia of nonobviousness, notably including evidence of nexus with the challenged claims, that would lead us to fault Petitioner for failing to address objective evidence in the Petition. *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33, 31–35 (PTAB Jan. 24, 2020). Accordingly, we decline to deny the Petition on this basis alone. Petitioner should be afforded an opportunity to test Patent Owner's argument about objective indicia and develop rebuttal evidence through trial. We will reevaluate argument and evidence about object indicia of nonobviousness on a fully developed record.

K. Alleged Lack of Enablement (Ground 3A)

Petitioner contends claims 8–13 are not enabled by the '854 patent. Pet. 86–89. Patent Owner disagrees. Prelim. Resp. 58–61.

1. Claim 8

Claim 8 depends from claim 1 and additionally recites “wherein the dry lubricant material includes a resin, a lubricant, a thermal conductor, and a hardener.” Ex. 1001, 12:41–43. Petitioner contends the range of coefficients of friction recited in claim 1 is not enabled by the dry lubricant material. Specifically, Petitioner contends the low region of the claimed range, such as coefficients of friction between about 0.03 to 0.06, are not enabled because they “cannot even be reached under ideal conditions in interactions between pure materials.” Pet. 88. According to Petitioner, because the dry lubricant of claim 8 requires additional high-friction materials such as epoxy, a person of ordinary skill would have understood it was not possible to achieve coefficients of friction in the range of 0.03 to 0.06. *Id.*

Patent Owner argues coefficients of friction between about 0.03 to 0.06 are “well-known and achievable” with the dry lubricant composition of claim 8, as the lubricant coating reduces the coefficient of friction. Prelim. Resp. 59. Patent Owner argues a person of ordinary skill would understand the commercial epoxies described in the ’854 patent contain silicone or PTFE and would provide the lowest claimed range of frictional coefficients. *Id.* at 59–60 (citing Ex. 1001, 7:10–13, 21–35). Patent Owner further argues it would be a simple and routine matter to determine how much lubricant should be added to obtain a mixture with the lowest claimed range of frictional coefficients based on the ’854 patent description (*id.* at 60 (citing Ex. 1001, 7:36–40)), and that a person of ordinary skill would also have recognized the heat effects from inclusion of a thermal conductor in the

composition “would explain how to achieve a frictional coefficient between 0.03 and 0.06.” *Id.* (citing Ex. 1001, 7:65–8:2).

After considering the parties’ arguments and evidence, we have concerns about the sufficiency of Petitioner’s showing relating to enablement of claim 8. Petitioner’s assertion that commercial epoxies suggested in the ’854 patent for use in the dry lubricant composition would not provide a frictional coefficient between 0.03 and 0.06 is unsupported. *See* Pet. 88. Dr. Wang’s assertion on this issue is conclusory, and although he recognizes that those commercial epoxies include silicon or PTFE, he does not address their coefficients of friction. Ex. 1003 ¶ 285. Similarly, his assertion that a person of ordinary skill would have been unable to achieve the claimed range by increasing the amount of lubricant or adding copper, based on the ’854 patent’s suggestion, is unsupported. *Id.* ¶ 287. Further, he does not address, for example, what experimentation a person of ordinary skill would undertake in adjusting the composition to achieve a desired coefficient of friction, and whether it would be routine or undue experimentation. *See In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988) (factor number 1). Nor does he address the predictability or unpredictability of the art. *See id.* (factor number 7). On this record, Dr. Wang’s statements do not adequately support Petitioner’s enablement argument.

2. Claims 9–13

Claims 9–13 depend from claim 8. Petitioner does not present a separate analysis for its enablement challenge to these claims. Our concerns as to Petitioner’s showing relating to enablement of claim 8 also apply to claims 9–13. Nonetheless, because Petitioner has demonstrated it is more likely than not that at least one claim of the ’854 patent is unpatentable, we

include this ground in the instituted post- grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60.

L. Alleged Indefiniteness (Ground 3B)

Petitioner argues that claims 5 and 26 are indefinite under 35 U.S.C. § 112(b). Pet. 89–91. Patent Owner disagrees. Prelim. Resp. 61–63.

1. Claim 5

Claim 5 depends indirectly from claim 1 and additionally recites “wherein the dry lubricant coating includes a thickness that is within a range of between about 1 micron to about 5 micron.” Ex. 1001, 12:31–33. Petitioner contends this claim language is indefinite because it has multiple possible meanings, such as requiring at least some regions of the coating to have the claimed thickness, and requiring that the coating has a thickness in the claimed range across the entirety of the coating. Pet. 89–90. Petitioner also contends the claim language could be understood to mean that the coating may have a thickness greater than 5 microns. *Id.* Petitioner contends the ’854 patent specification does not provide a basis for selecting among the potential meanings of the claim language, but “merely describes that the coating includes a thickness that ‘can be substantially constant over the sliding surface’ or ‘may taper’ along the sidewalls or base walls.” *Id.* at 90 (quoting Ex. 1001, 6:36–7:9).

Patent Owner argues Petitioner’s contention ignores the claim language itself, which requires that the thickness is “within” the range. Prelim. Resp. 62. Patent Owner further argues the ’854 patent specification provides guidance as to the reasonable interpretation of claim 5. *Id.* (citing Ex. 1001, 6:22–26, 6:46–47).

After considering the parties' arguments and evidence, we agree with Patent Owner that the '854 patent specification supports its position, and not Petitioner's. The specification states

The dry lubricant coating 34 includes a thickness T which may be substantially constant over at least the sliding surface 38 of the base wall 24 ... [t]he thickness T of the dry lubricant coating 34 may be within a range of between about 1 micron to about 5 micron.

Ex. 1001, 6:22–26, 46–47. In our view, this portion of the specification, which mirrors the language of claim 5, does not suggest a thickness greater than 5 microns. Accordingly, we have concerns about the sufficiency of Petitioner's indefiniteness challenge to claim 5. Nonetheless, because Petitioner has demonstrated it is more likely than not that at least one claim of the '854 patent is unpatentable, we include this ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60.

2. Claim 26

Claim 26 depends from claim 22, which recites a ride vehicle comprising a body including a central core. Ex. 1001, 13:29–33. Claim 26 additionally recites “wherein the central core is surrounded by a fabric liner that is positioned between the central core and the fabric layer and the woven mesh layer.” *Id.* at 14:24–26. Petitioner contends this claim language is indefinite because there is no antecedent basis for “the fabric layer” and the meaning and scope of the claim is unclear. Pet. 90. According to Petitioner, the claim language does not clearly state where the fabric liner is positioned within the ride vehicle and has at least three possible interpretations in that regard, and the specification merely recites similar language as the claim. *Id.* at 91 (citing Ex. 1001, 10:9–16, 3:29–32).

Patent Owner concedes “the fabric layer” lacks antecedent basis, but argues the ’854 patent specification provides details that would guide a person of ordinary skill to understand that the fabric layer is positioned between the central core, the fabric liner, and the woven mesh layer. Prelim. Resp. 63 (citing Ex. 1001, Figs. 3 and 4, 9:63–10:16). According to Patent Owner, a person of ordinary skill would understand Petitioner’s asserted alternative interpretations are unfounded because they ignore the claim language and disclosures of Figures 3 and 4. *Id.*

After considering the parties’ arguments and evidence, we agree with Patent Owner that the claim language and ’854 patent specification supports its position. In our view, the specification clearly describes fabric layer 62 forming top surface 54 of ride vehicle 14, and mesh layer 64 forms the bottom surface. Ex. 1001, 9:66–10:1. The specification further includes language that mirrors the language of claim 26. Accordingly, we have concerns about the sufficiency of Petitioner’s indefiniteness challenge to claim 26. Nonetheless, because Petitioner has demonstrated it is more likely than not that at least one claim of the ’854 patent is unpatentable, we include this ground in the instituted post-grant review. *See SAS*, 138 S. Ct. at 1354, 1359–60.

M. Discretion Under 35 U.S.C. § 325(d)

Patent Owner argues we should discretionarily deny institution under § 325(d), because Fallgatter was considered during examination leading to the ’854 patent, and Phillips’s disclosure is cumulative of Fallgatter. Prelim. Resp. 23. For the reasons discussed below, we do not invoke our discretion to deny institution under § 325(d).

1. Principles of Law

Under § 325(d), in determining whether to institute a post-grant review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” Our analysis of arguments presented under § 325(d) employs a two-prong framework: (1) whether the prior art and arguments presented in the petition are the same or substantially the same as those previously presented to the Office; and (2) if so, whether the petitioner has demonstrated a material error by the Office in its prior consideration of those prior art and arguments. *Advanced Bionics, LLC v. Med-El Electromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (“Advanced Bionics”), 8 (PTAB Feb. 13, 2020) (precedential).

We consider several non-exclusive factors as set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (“Becton, Dickinson”), which “provide useful insight into how to apply the framework” under § 325(d). *Advanced Bionics*, 9. These non-exclusive factors include:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;

(d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;

(e) whether Petitioner has pointed out sufficiently how the Office erred in its evaluation of the asserted prior art; and

(f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, 17–18 (formatting added). “If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Advanced Bionics*, 10.

2. *Whether the Prior Art and Arguments are the Same or Substantially the Same*

Patent Owner argues Phillips and WN0400 are substantially the same as references considered during examination of the ’854 patent application, including Fallgatter. Prelim. Resp. 23. Patent Owner provides a comparison of the materials disclosed in two Phillips references⁸ and Fallgatter for the slide and sliding vehicle, which include woven nylon, Teflon, and polyester. *Id.* at 28–29. Patent Owner further argues WN0400 discloses woven nylon, like Fallgatter, and that there is no evidence Phillips and WN0400 “add anything beyond what the Office has already considered.” *Id.* at 29.

Petitioner argues Phillips provides additional details of materials and construction of the slide and vehicle that are not contained in Fallgatter, and

⁸ In addition to Phillips (Ex. 1004), Patent Owner refers to US Patent No. 6,142,879, to Phillips, issued November 7, 2000 (Ex. 1023), which was presented to the Office during prosecution of the ’854 patent.

that WN0400 discloses information related to nylon mesh unlike any reference the Office considered. Reply 6.

We find that Phillips includes substantially the same disclosures relating to materials and construction of the slide and vehicle as relied upon by Petitioner. Like Fallgatter, Phillips describes a low friction slide system and woven materials for the bottom surface of the vehicle, including woven nylon, polyester, and Teflon. *See* Section II.E–G. Similarly, WN0400 describes woven nylon. Ex. 1006; *see* Section II.E, II.G. In view of this overlap regarding the vehicle’s bottom surface material, we find that for purposes of deciding whether to institute this post-grant review, Phillips and WN0400 are substantially the same as Fallgatter. This satisfies the first prong of *Advanced Bionics*.

3. *Whether Petitioner has Demonstrated Material Error*

We next analyze whether Petitioner has demonstrated a material error by the Office under the second prong of *Advanced Bionics*.

Petitioner argues prosecution of the ’854 patent “involved multiple material errors in failing to consider relevant disclosure of Fallgatter in combination with other pertinent prior art.” Pet. 94. Specifically, Petitioner argues “the error in failing to appreciate that Fallgatter teaches an appropriate upper limit in the disclosure of the coefficient of friction between the surface of the slide and ride vehicle (and not a particular frictional coefficient value associated with a select ride vehicle) highlights that it was not properly considered.” *Id.* at 92–93; *see also id.* at 9–10.

Patent Owner argues “[b]y citing Fallgatter repeatedly during prosecution of the ’854 patent and highlighting Fallgatter as the ‘closest prior art,’ it is clear that the Examiner fully considered and understood the

reference.” Prelim. Resp. 25 (citing Ex. 1002, 71–75, 130–137, 184–187), 30–31. Patent Owner further argues its Amendment in response to the Office Action citing Fallgatter (Ex. 1002, 106) specifically addressed Fallgatter’s teaching regarding coefficients of friction and “require[ed] the Examiner to assess not only the materials and construction of the slide surface and ride vehicle disclosed in Fallgatter but also the extent to which Fallgatter’s disclosure supports a specific coefficient of friction between those surfaces.” *Id.* at 30–31.

We find that Petitioner has demonstrated a material error by the Office. In allowing the claims, the Examiner stated Fallgatter “does not teach the coefficient of friction being between 0.03 and 0.2. Thus, the two matching surfaces do not have that coefficient of friction.” Ex. 1002, 135; *see* Pet. 9–10. As discussed in Section II.G–I above, however, coefficients of friction between the surface of a dry lubricated slide and ride vehicle of about 0.25 and below were known. Further, the Petition presents the combination of Phillips, Fallgatter, and WN0400 which is additional evidence that warrants reconsideration of the prosecution arguments as to whether the claimed subject matter was known at the time of the ’854 patent application. Therefore, we are persuaded that Petitioner has demonstrated material error under the second prong of *Advanced Bionics*.

4. Conclusion

For the foregoing reasons, we decline to exercise discretion to deny institution under § 325(d).

III. CONCLUSION

Based on the arguments in the Petition and the evidence of record, we determine that Petitioner has established it is more likely than not that at

least one challenged claim of the '854 patent is unpatentable, and we grant institution of a post-grant review on all challenges raised in the Petition.

At this stage of the proceeding, we have not made a final determination with respect to the patentability of any challenged claim or any underlying factual or legal issue, including claim construction. Our final decision will be based on the record as fully developed during trial.

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that a post-grant review of all challenged claims of the '854 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 324, post-grant review of the '854 patent is hereby instituted commencing on the entry date of this Order, and notice is hereby given of the institution of a trial.

PGR2024-00054
Patent 11,998,854 B1

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