UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UATP IP, LLC,
Petitioner,

v.

SLICK SLIDE LLC,
Patent Owner.

Case PGR2024-00054
Patent 11,998,854

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO PETITION

TABLE OF CONTENTS

I. INTRODUCTION 1

II. CLAIM CONSTRUCTION 2
- **A.** "Mesh layer" encompasses woven, permeable material ([1b-iii]) 2
- **B.** "Coefficient of friction" does not require ASTM D1894 ([1c]) 7

III. PHILLIPS-WN0400 RENDERS OBVIOUS 1-4, 6-7, 14-17, 22-28 (GROUND 1B) 7
- **A.** A POSITA would have been motivated to combine Phillips-WN0400 8
  1. A POSITA Would Have Been Motivated To Implement Phillips' Nylon as Mesh 8
  2. Phillips Does Not Teach Away From Mesh 11
  3. Nylon Mesh Was Known To Be Durable 12
  4. Attaching The Mesh Layer To The Ride Vehicle Was Routine For a POSITA 13
- **B.** The Phillips-WN0400 Combination provides Element [1c] 14

IV. PHILLIPS ANTICIPATES AND RENDERS OBVIOUS CLAIMS 1-4 AND 6-7 (GROUND 1A) 16
- **C.** Phillips anticipates and renders obvious the claimed "mesh layer" ([1b-iii]) 16
- **D.** Phillips anticipates and renders obvious the claimed CoF range (Element [1c]) 16

V. PHILLIPS-FALLGATTER RENDERS CLAIMS 1-7 OBVIOUS (GROUNDS 2A) 17
- **A.** Phillips-Fallgatter provides [1b-iii] 18
- **B.** Philips-Fallgatter provides Element [1c] 18

VI. PHILLIPS-FALLGATTER-WN0400 RENDERS CLAIMS 1-7, 14-17, 22-28 OBVIOUS (GROUND 2B) 19

VII. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT CLAIMS 8-13 ARE NOT ENABLED (GROUND 3A) 20

VIII. CLAIMS 5 AND 26 ARE INDEFINITE (GROUND 3B) 22

IX. PO'S SECONDARY CONSIDERATIONS ARE DEFICIENT 23
- **A.** PO's analysis is directed to products that pre-date the '854 patent 24

B. The purported commercial products are not "coextensive with" the '854 claims. 26
1. PO failed to demonstrate that the purported commercial slides provide Element [1c] 27
2. The purported commercial slides utilize an unclaimed liquid oil lubricant 28
3. The commercial slides include distinct ride features and are the subject of numerous patents. 28
C. PO has not established nexus because the purported secondary considerations are not reliable and are not tied to the Challenged Claims 30
1. PO's purported praise is based on its own press releases and marketing materials, not third-party industry praise. 30
2. PO's purported commercial success is not based on sales or market share tied to challenged claims. 31
3. PO's other assertions are unsupported 34
X. POSITA 34
XI. REAL-PARTIES-IN-INTEREST 35

EXHIBITS

UATP-1001	U.S. Patent No. 11,998,854 to Schmit ("the '854 patent")
UATP-1002	Excerpts from the Prosecution History of the '854 Patent ("the Prosecution History")
UATP-1003	Declaration of Dr. Youjiang Wang
UATP-1004	U.S. Patent No. 7,896,779 to Phillips ("Phillips")
UATP-1005	U.S. Patent Publication No. 2023/0129814 to Fallgatter ("Fallgatter")
UATP-1006	*WN0400 – 400 Micron Nylon Mesh 45% Open Area*, Industrial Netting product page, archived by Internet Archive Wayback Machine on July 28, 2021 (https://web.archive.org/web/20210728222259/https:/www.industrialnetting.com/wn0400-400-micron-nylon-woven-mesh.html) ("WN0400")
UATP-1007	*Woven Mesh: Nylon, Polyester or Polypropylene Plastic Mesh*, Industrial Netting, archived by Internet Archive Wayback machine on June 21, 2021 (https://web.archive.org/web/20210621025620/https:/www.industrialnetting.com/woven-mesh.html)
UATP-1008	*6.2 Friction*, University Physics Volume 1, openstax (retrieved from https://openstax.org/books/university-physics-volume-1/pages/6-2-friction)
UATP-1009	V.K. Kothari et al., *Assessment of frictional properties of some woven fabrics*, Indian Journal of Fibre and Textile Research, Vol. 19 (September 1994) 151-155
UATP-1010	W. Żurek et al., *Surface Frictional Resistance of Fabrics Woven from Filament Yarns*, Textile Research Journal, Vol. 55, No. 2 (1985), 113-121

UATP-1011	W.D. Callister, *Materials Science and Engineering An Introduction*, ed. 7, John Wiley & Sons, Inc. (2007)
UATP-1012	*WN0400 – 400 Micron Nylon Mesh 45% Open Area*, Industrial Netting product page, accessed at https://www.industrialnetting.com/wn0400-400-micron-nylon-woven-mesh.html
UATP-1013	M. Watanabe, et al., *The Frictional Properties of Nylon*, Wear, 12 (1968) 185-191
UATP-1014	British Patent Publication No. 402,259 to Wicksteed
UATP-1015	*World's First Children's slide*, BBC NewsRound, April 17, 2012 (retrieved from https://www.bbc.co.uk/newsround/17747678)
UATP-1016	A.F.W. Coulson, et al., *Frictional Properties of Nylon Yarn and Their Relation to the Function of Textile Guides*, Journal of the Textile Institute Proceedings, 46:1 (January 7, 2009), 101-111
UATP-1017	R. Kisiel, *Somebody call elf 'n' safety, standards are on the slide!*, DailyMail, April 17, 2012 (retrieved from https://www.dailymail.co.uk/news/article-2130923/Historians-discover-worlds-childrens-slide-built-90-years-ago-plank-wood.html)
UATP-1018	R. Allain, *Fair Physics: The Big Slide*, Wired (June 3, 2011) (retrieved from https://www.wired.com/2011/06/fair-physics-the-big-slide/)
UATP-1019	L. Nichols, *The Physics of a Playground Slide*, Sciencing.com (April 24, 2017) (retrieved from https://sciencing.com/physics-playground-slide-8657662.html)
UATP-1020	R. Allain, *The Physics of Going Fast –but Not Too Fast – on a Giant Slide*, Wired (September 23, 2022) (retrieved from

	https://www.wired.com/story/the-physics-of-going-fast-but-not-too-fast-on-a-giant-slide/)
UATP-1021	PTC Windchill Risk and Reliability Desktop Help Center, *Friction Coefficients,* (retrieved from https://support.ptc.com/help/wrr/r12.0.2.0/en/index.html#page/wrr/ReferenceGuide/prediction/friction_coefficients.html)
UATP-1022	U.S. Patent No. 5,246,401 to Boatwright
UATP-1023	U.S. Patent No. 6,142,879 to Phillips
UATP-1024	U.S. Patent No. 8,695,994 to Maratta
UATP-1025	U.S. Patent No. 6,231,483 to Phillips
UATP-1026	*Friction: Friction Coefficients and Calculator*, The Engineering Toolbox (2004) (retrieved from https://www.engineeringtoolbox.com/friction-coefficients-d_778.html)
UATP-1027	P.J. Blau et al., *Appendix: Static and Kinetic Coefficients for Selected Materials*, ASM Handbook vol. 18 (1992) 70-75
UATP-1028	N.P. Suh & M. Mosleh, *The Minimum Coefficient of Friction: What Is It?*, CIRP Annuals, Vol. 43, Issue 1 (1994) 491-495
UATP-1029	*Kings Island's Ultimate Fansite!*, King Island Central (retrieved from https://kicentral.com/parkhistory/past-attractions/scrappys-slides/)
UATP-1030	S. Murphy, *Is that the same giant slide we got on as children?*, Detroit Historical Society, September 9, 2022 (retrieved from https://detroithistorical.org/blog/2022-09-09-%E2%80%9C-same-giant-slide-we-got-children%E2%80%9D)

UATP-1031	Declaration of Nathaniel E. Frank-White re Internet Archive record of Industrial Netting websites corresponding to UATP-1006 and UATP-1007
UATP-1032	Industrial Netting Home page, archived by Internet Archive on July 28, 2021 (https://web.archive.org/web/20210728223652/https://www.industrialnetting.com/)
UATP-1033	Industrial Netting Nylon page, archived by Internet Archive on May 29, 2022 (https://web.archive.org/web/20220529115425/https://www.industrialnetting.com/nylon.html)
UATP-1034	*Sailcloth*, Dictionary.com entry (retrieved from https://www.dictionary.com/browse/sailcloth)
UATP-1035	Industrial Netting YouTube page, archived by Internet Archive on July 2, 2022 (https://web.archive.org/web/20220702033025/https://www.youtube.com/user/IndustrialNetting/about)
UATP-1036	Industrial Netting Home page – screenshot of dropdown menu, archived by Internet Archive on July 28, 2021 (https://web.archive.org/web/20210728223652/https://www.industrialnetting.com/)
UATP-1037	*Mesh*, Dictionary.com entry (retrieved from https://www.dictionary.com/browse/mesh)
UATP-1038	*Fabric*, Dictionary.com entry (retrieved from https://www.dictionary.com/browse/fabric)
UATP-1039	Liu et al., *Preparation and Tribological Properties of Modified MoS_2/SiC/Epoxy Composites*, Materials 2021, 14, 1731

UATP-1040	Brostow et al., *Modified Epoxy Coatings on Mild Steel: Tribology and Surface Energy*, European Polymer Journal, 2010, 46, 2181-2189
UATP-1041	Kumar et al., *Tribological Studies of Epoxy Composites with Solid and Liquid Fillers*, Tribology International, 2017, 105, 27-36
UATP-1042	Declaration of June Ann Munford
UATP-1043	Supplemental Declaration of Dr. Youjiang Wang
UATP-1044	Second Declaration of Dr. Youjiang Wang
UATP-1045	Deposition Transcript of Dr. Rust, October 22, 2025
UATP-1046	Deposition Transcript of Dr. Spiegelberg, October 30, 2025
UATP-1047	Deposition Transcript of Mr. Schmit, November 10, 2025
UATP-1048	Cruising Genoa: Voyager Cross-Cut (retrieved from https://www.uksailmakers.com/cruising/genoas/voyager-genoa/)
UATP-1049	I Tried EVERY SLIDE At Slick City! (Jul. 10, 2024), *available at* I Tried EVERY SLIDE At Slick City! - YouTube
UATP-1050	Franchisetimes.com, *Former Sky Zone Franchisee Launches Slick City as Slide-Centric Indoor Park Franchise* (April 2, 2024) (retrieved from https://www.franchisetimes.com/franchise_news/former-sky-zone-franchisee-launches-slick-city-as-slide-centric-indoor-park-franchise/article_544416ba-f0f1-11ee-80ba-93e32416194b.html)
UATP-1051	Types of Metal Mesh Sheets (retrieved from https://www.sanghvioverseas.com/blog/types-of-metal-mesh-sheets/)

UATP-1052	What Is A Metal Mesh Sheet?, archived by Internet Archive on Oct. 21, 2020 (https://web.archive.org/web/20201021012700/https://www.anbmetal.com/what-is-a-metal-mesh-sheet)
UATP-1053	Types of Metal Mesh Sheets 100 Mesh Paint Nylon Mesh Filter Woven Net Sheet Filter Cloth (39"x39") (retrieved from https://www.amazon.com/WorkBless-Paint-Nylon-Filter-Woven/dp/B0F3CT1T8Y)
UATP-1054	SAILCLOTH (retrieved from https://bainbridgeintusa.com/wp-content/uploads/2022/08/HSX-V.pdf)
UATP-1055	*Slick Slide, LLC v. Wittman et al*, Exhibit C – Redacted Schmit Deposition Excerpts, 1:23-cv-01486-WCG (Filed June 2, 2025)
UATP-1056	GB Patent No. 2,623,710 to Schmit ("Schmit-710")
UATP-1057	IYU SAILCLOTH TEST REPORT: TECHNICAL DATA SHEET (retrieved from https://iyusailcloth.com/pdf/TECHNICAL%20DATA%20SHEET-0412%20IYU.pdf)
UATP-1058	Video, Go down feet first or headfirst if you dare on our Mega Launch Slide! (Jul. 16, 2020), *available at* https://www.facebook.com/skyzonemurfreesboro/videos/go-down-feet-first-or-headfirst-if-you-dare-on-our-mega-launch-slide/321287338875863/
UATP-1059	Sky Zone Murfreesboro Facebook Post (July 16, 2020), *available at* https://www.facebook.com/skyzonemurfreesboro/videos/go-down-feet-first-or-headfirst-if-you-dare-on-our-mega-launch-slide/321287338875863/
UATP-1060	Video, Mega Launch Slide (Jul. 2, 2020), *available at* https://www.facebook.com/skyzonemurfreesboro/videos/mega-launch-slide/332740041052911/

UATP-1061	Sky Zone Murfreesboro Facebook Post (July 2, 2020), *available at* https://www.facebook.com/skyzonemurfreesboro/videos/mega-launch-slide/332740041052911/
UATP-1062	Video, Go down feet first or headfirst if you dare on our Mega Launch Slide! (Sep. 14, 2021), *available at* https://www.facebook.com/skyzonepeoriaaz/videos/mega-launch-skyzone-trampoline-indoorplayground-slide-megalaunch-birthday-birthd/605351337297363/
UATP-1063	Sky Zone (Peoria, AZ) Facebook Post (Sept. 14, 2021), *available at* https://www.facebook.com/skyzonepeoriaaz/videos/mega-launch-skyzone-trampoline-indoorplayground-slide-megalaunch-birthday-birthd/605351337297363/
UATP-1064	Video, MEGA LAUNCH SLIDE (Sep. 29, 2020), *available at* https://www.facebook.com/skyzonepeoriaaz/videos/364593258002015/
UATP-1065	Sky Zone (Peoria, AZ) Facebook Post (Sep. 29, 2020), *available at* https://www.facebook.com/skyzonepeoriaaz/videos/364593258002015/
UATP-1066	Video, Open Jump Mega Launch (Sep. 10, 2020), *available at* https://www.facebook.com/skyzonepeoria/videos/open-jump-mega-launch/773021073484766/
UATP-1067	Sky Zone (Peoria, AZ) Facebook Post (Sep. 10, 2020), *available at* https://www.facebook.com/skyzonepeoria/videos/open-jump-mega-launch/773021073484766/
UATP-1068	Video, racing' on the Grand Prix Slides (Jun. 11, 2021), *available at*

	https://www.facebook.com/SkyZoneFortLauderdale/videos/racing-on-the-grand-prix-slides/1169091470198731/
UATP-1069	New Attraction! Grand Prix In Fort Lauderdale, FL, archived by Internet Archive on Oct. 20, 2020 (https://web.archive.org/web/20211020192013/https://www.skyzone.com/fortlauderdale/attractions/grand-prix/)
UATP-1070	Joint Written Consent (Dec. 27, 2022) (redacted)
UATP-1071	Joint Written Consent (Dec. 27, 2022) (redacted) and Declaration of Stephen Polozola re Authentication of Joint Written Consent
UATP-1072	Mega Launch In Murfreesboro, TN, archived by Internet Archive on Sep. 22, 2020 (https://web.archive.org/web/20200922195857/https://www.skyzone.com/murfreesboro/attractions/mega-launch)
UATP-1073	Come Fly With Us! Mega Launch 16 Feet of Drop and 17 Feet of Flight! archived by Internet Archive on Sep. 22, 2020 (https://web.archive.org/web/20200922013400/https://www.skyzone.com/peoria)

I. INTRODUCTION

Slide systems with a mesh layer ride vehicle and non-wet lubricated slide surface were well-known before the ’854 Patent. Patent Owner (PO) tries to construe around the art by requiring a “coefficient of friction” (CoF) to be tested using an unclaimed standard and the nylon mesh described in the art to be insufficiently woven. The ’854 patent doesn’t support these interpretations. And, even if adopted, they are ineffective in distinguishing the Grounds in the Petition that align with example embodiments of the ’854 patent—there is no dispute that Phillips-WN0400(Ground 1B) includes a “mesh layer” and “non-wet lubricated slide surface,” as claimed.

In greater detail, PO attempts to draw a hard boundary between terms “sheeting” and “mesh.” But this purported distinction is contrary both to usage by Phillips and the ASTM definition of “mesh” cited by PO which recites a “woven” and “permeable” material, encompassing “sheeting” having that construction. Indeed, Phillips lists sailcloth as a “sheeting material,” and sailcloth meets the ASTM definition of “mesh.”

PO alleges secondary indicia of nonobvious, but in doing so implicates prior art product that predates the ’854 patent by more than a year. Beyond this fatal flaw, PO’s purported commercial products include unclaimed features that directly impact CoF (e.g., an oil lubricant applied as a liquid) and the ride experience (e.g., airborne

launch features, etc.), and are covered by numerous other patents. As to industry praise, PO relies almost entirely on its own press releases of its commonly owned "sister" entity, including material Mr. Schmit (sole inventor and owner of both PO and its "sister" entity) confirmed was not accurate and characterized as "fluff."

As to enablement, the record lacks any test results of a slide system having features recited in claims 8-13 that achieves the low end of the claimed CoF range. PO's test results submitted as EX2039 relate to an undisclosed sample without any indication of the materials tested or relationship to the purported commercial product—Dr. Spiegelberg testified he didn't know the material composition or source of the mesh and polymer samples. UATP-1046, 69:4-71:16; 34:20-35:2; 59:25-18. The recitations in the '854 patent specification fail to enable a POSITA to achieve the low end of the range with an epoxy absent undue experimentation.

II. CLAIM CONSTRUCTION

No constructions that substitute language for the original claim terms are necessary to resolve invalidity given the overlap between the preferred embodiment of the '854 patent and the prior art set forth in the Petition. Nevertheless, Petitioner addresses PO's proposed constructions here, which contradict the '854 patent itself.

A. "Mesh layer" encompasses woven, permeable material ([1b-iii])

As an initial matter, there is no dispute that the prior art discloses a "mesh layer," even as recited by PO's proposed construction. PO never disputes that the Phillips-WN0400 system provides a "mesh layer." POR, 10-16; POR, 52-66; UATP-1044, ¶¶11-12. Thus the term need not be construed to resolve validity.

As to the wording of PO's substitute language, which indicates "'mesh layer' means a layer of mesh material which is characterized by open spaces between threads" (POR, 12), little helpful to the POSITA's understanding is included. PO's application of its interpretation, however, injects substantial improper narrowing limitations. UATP-1044, ¶13; POR, 12, 32.

PO's declarant Dr. Rust indicated that, under PO's interpretation, the characteristics of a material's "open spaces" do not determine whether the material is a "mesh layer." UATP-1045, 55: 55:10-56:24. Rather, determining whether a material is a "mesh layer" requires a "technical specification" that ***characterizes*** the material's open spaces:

> So to be a mesh layer means that the material is characterized by open spaces, and ***that means that there is a technical specification*** that - - that indicates the size of the opening or the percent of open area.

UATP-1045, 55:10-56:24; UATP-1044, ¶14. Dr. Rust described a material having "open spaces between threads" such that it is "see-through" due to "holes in the structure" but that is ***excluded*** from PO's definition of "mesh layer":

> The burlap example that you brought up earlier is a prime example. That example lists clearly how it's characterized. ***It's characterized by fabric weight*** as 10 ounces. Okay? It's not characterized by the openings or the size of the openings; and, ***therefore, it's not a mesh***.

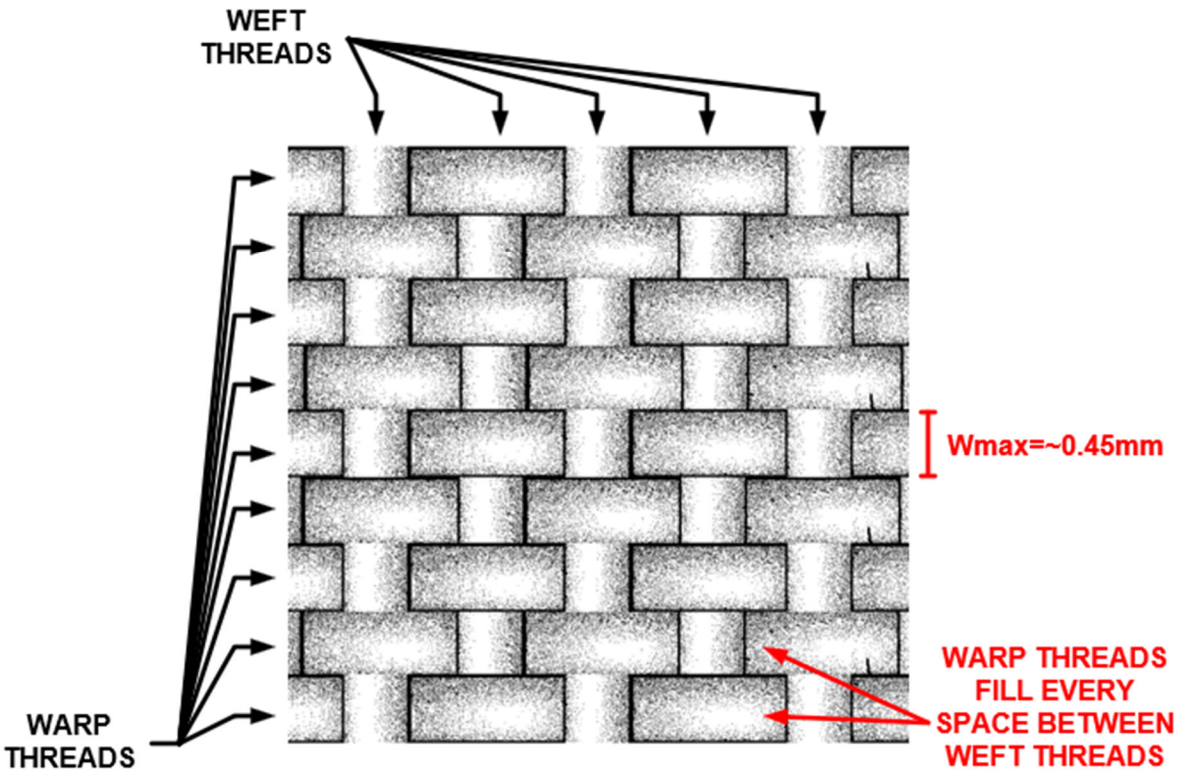
UATP-1045, 55:7-56:8 (discussing EX2012); UATP-1044, ¶15. PO's interpretation arbitrarily confines "mesh layer" based on technical specifications or data sheets, rather than on the characteristics of the material. UATP-1044, ¶16. No such limitation is reflected by the '854 specification or ordinary usage.

PO's faulty proposal is also contradicted by its own extrinsic definitions. The ASTM standard cited by PO defines the term "fabric, mesh" as "a ***woven*** fabric with a ***permeable*** network made from interlacing threads or mono filament fibers." EX2018, 2. This definition comports with common usage, yet PO attempts to exclude materials that are encompassed by this conventional understanding, such as Phillips' sailcloth. UATP-1044, ¶¶23-25.

PO's faulty analysis is not remedied by its assertion that a POSITA "understands the difference between a woven fabric that is not characterized by open spaces versus a mesh that is characterized by open spaces," and understands

"the lower bound of the range of open spaces that still is considered a mesh." POR, 13. Tellingly, PO never provided criteria for such determination, or that a lower bound exists other than impermeability, and relies on a false assertion that Dr. Wang admitted to this distinction. EX2029, 85:1-25; UATP-1044, ¶¶17-19; UATP-1045, 53:22-54:2.

PO's narrow application of "mesh layer" also improperly excludes example embodiments in the '854 specification in which warp threads, for example, are arranged side-by-side (e.g., in contact with one another). EX1001, 10:17-50. Such constructions include interstices (e.g., open spaces) between threads, and are permeable, but yet are improperly excluded by PO's application that implicitly demands open separation between parallel threads.



UATP-1044, ¶20; UATP-1001, FIG. 5 (modified and annotated). UATP-1045, 58:20-59:4 ("***not a mesh***"); UATP-1045, 50:13-51:11, 58:20-59:4, 60:6-61:4.

The specification is clear that at least some implementations include a weave of threads without any requirements related to open spaces. EX1001, 2:37-53 ("one aspect"); 3:16-32 ("In another aspect"); UATP-1044, ¶21. And PO's usage elsewhere and in counterparts highlights that PO's proposed language would render claim language reciting "open area" to be superfluous. EX1001, cl. 17; UATP-1056 (GB2623710), cl. 1; UATP-1044, ¶22.

The evidence confirms that "mesh layer" encompasses woven material that is permeable through interstices, regardless of whether adjacent threads (e.g.,

parallel warp threads) are in physical contact. UATP-1044, ¶¶23-25. PO waived its opportunity to amend the claims, and cannot do so through its demand to interpret the term in an improperly narrow manner.

B. "Coefficient of friction" does not require ASTM D1894 ([1c])

The '854 patent expressly discloses ASTM D1894 as an example and lacks lexicography or disclaimer that limits 'coefficient of friction' to a specific ASTM test. EX1001, 11:31-44; EX1046, 108:18-113:15. The '854 patent explains that "Coefficient of Friction (p)=Force of Friction (F)/Normal Force (N)." EX1001, 4:38-43. This is consistent with the conventional definition of CoF. UATP-1044, ¶¶26-29.

III. PHILLIPS-WN0400 RENDERS OBVIOUS 1-4, 6-7, 14-17, 22-28 (GROUND 1B)

The Reply first addresses PO's assertions regarding Phillips-WN0400 (Ground 1B), and then Grounds 1A (Phillips) and 2A-2B (Phillips-Fallgatter/Phillips-Fallgatter-WN0400).

Aside from brief arguments relating to the CoF range, PO does not dispute that Phillips-WN0400 discloses all limitations of the challenged claims. PO focuses largely on motivation to combine/reasonable expectation of success (POR, 52-66), but PO's theories fail to undermine straightforward motivations articulated

by the Petition and are premised on improper bodily incorporation. UATP-1044, ¶¶30, 33.

A. A POSITA would have been motivated to combine Phillips-WN0400

As an initial matter, the POR never specifically disputes that "a POSITA would have been motivated to implement Phillips' "nylon" bottom surface in accordance with WN0400 to ***facilitate sourcing*** by utilizing a material commercially available from nylon mesh suppliers." Pet., 40. This rationale remains uncontroverted and provides an independent basis for Phillips-WN0400. UATP-1044, ¶¶34-35; Paper 9, 9 ("may be deemed waived.").

As set forth in the Petition, multiple additional reasons would have motivated a POSITA to combine Phillips with a nylon mesh suggested by WN0400. Pet., 39-42. There is no dispute that woven nylon was a known low friction material. EX1045, 62:6-9, 76:18-21 And Phillips expressly identifies both nylon and woven materials (e.g., "sailcloth") as "low friction high durable material" suitable for the ride vehicle bottom. UATP-1004, 4:38-49. A POSITA would have selected a woven nylon mesh, such as described by WN0400, as a readily available material to achieve express benefits of low friction and high durability articulated by Phillips. Pet., 39-40; UATP-1044, ¶34.

1. A POSITA Would Have Been Motivated To Implement Phillips' Nylon as Mesh

Phillips already recites woven materials and selecting a more open weave would have been obvious to a POSITA because open weaves were known to slide with lower friction over a surface. Pet., 40-42; UATP-1044, ¶¶36-37. A POSITA knew both that mesh coarseness impacted CoF and that coarse mesh constructions often promoted lower CoF as compared with fine mesh. *Id.* Kothari (UATP-1009) corroborates the POSITA's knowledge on this point. Kothari expressly indicates that "variation of mesh size in monofilament fabrics affects the frictional resistance of these fabrics." UATP-1009, 3-4; UATP-1003, ¶137 ("the finest meshes having a higher coefficient of friction than the coarsest meshes"). Indeed, Kothari's data consistently indicates that the coarsest nylon mesh has the lowest CoF, and the finest nylon mesh has the highest CoF, according to more than one measure (i.e., Fabric-to-Fabric, Fabric-to-Leather, Fabric-to-Metal). UATP-1009, 4, Table 2 (Fabric No. 15 exhibits lower CoF than Fabric Nos. 13 and 14 according to all three measurements). A POSITA would have thus looked to mesh such as WN0400 to advance Phillips' express objectives of "low friction" vehicle bottom made of "nylon." UATP-1044, ¶37.

PO and its declarants' incorrectly assert that the "lowest density mesh has the highest COF, which is the opposite of Dr. Wang's interpretation of this Exhibit." EX2026, ¶198. But this assertion is premised on a mistaken use of "fabric weight" as a measure of "mesh density," instead of "sett" described by the

the'854 patent. EX2026, ¶198. On cross-examination, Dr. Spiegelberg acknowledged that the '854 patent defines "density" as a measure of threads per centimeter, a parameter likewise identified in UATP-1009 and referred to as "sett." UATP-1046, 81:23-82:6, 88:19-24. This sett parameter, consistent with the'854 patent's usage of "density," corroborates the trend a POSITA would have recognized—lower density, higher coarseness meshes tend to have lower coefficients of friction on a variety of surface types. UATP-1044, ¶38.

PO's additional assertions amount to strawman arguments that mischaracterize the combination, Dr. Wang, or both, and are premised on bodily incorporation. UATP-1044, ¶¶39-40. PO asserts that "Petitioner's expert admits that a POSITA…would not change to a bottom surface with a material that has a higher CoF" (POR, 54), but Dr. Wang never suggested that the combination would require increasing CoF or that a POSITA would have looked exclusively to CoF. UATP-1029, 122:20-123:23. Dr. Rust likewise acknowledged that a POSITA "could be justified to pick the higher coefficient of friction material" based on design criteria. UATP-1045, 65:14-67:4.

PO asserts that "the lowest CoF for any mesh relied upon by Petitioner's expert is 0.26" (POR, 54), but in doing so cites only UATP-1009 and ignores the actual combination based on Phillips-WN0400 and other coefficient of friction

evidence cited in the Petition. UATP-1004, 4:38-49; UATP-1021, 1; UATP-1026, 5, 7; UATP-1027, 4; UATP-1009, 4-5; UATP-1044, ¶41.

2. Phillips Does Not Teach Away From Mesh

PO attempts to draw an artificial distinction between "sheeting" and "mesh," incorrectly alleging that "sheeting material" is "the opposite of a mesh layer." POR, 42, 53-55; UATP-1044, ¶¶42, 48-50. This distinction is contrary to PO's own extrinsic definitions. PO and Dr. Rust present definitions of "sheeting" that refer to "material in the form of sheets," "plain-woven cloth," and "bedsheets," and Dr. Rust further confirmed the woven, permeable construction of "bedsheets." EX2005; EX2007; UTAP-1045, 43:19-45:16; 45:18-47:4. Not only is such construction not mutually exclusive of a "mesh," but it in fact aligns squarely with the ASTM standard cited by PO defining "fabric, mesh" as "a ***woven*** fabric with a ***permeable*** network made from interlacing threads or mono filament fibers." EX2018, 2. A POSITA simply would not have understood Phillips' use of the term "sheeting" as prohibiting a "mesh" layer. UATP-1044, ¶¶43, 48 (citing UATP-1051; UATP-1052; UATP-1053).

Nothing in Phillips excludes a mesh implementation for its express "nylon" ride vehicle bottom. UATP-1044, ¶44. Phillips provides a list of very different materials (e.g., sailcloth, artificial turf, synthetic carpet, etc.), highlighting "nylon" is likewise not limited to a particular morphology. And as a woven and permeable

material, Phillips' "sailcloth" fits squarely within the ASTM "mesh" definition. UATP-1048 ("breathable, woven"); UATP-1054; UATP-1044, ¶¶46-47.

PO's assertions that a POSITA would not have considered "mesh" based on Phillips description of "sheeting" further ignores that woven material with open spaces between threads was used in prior art ride vehicles. UATP-1044, ¶45; Pet., 1-3. In addition to polymer mesh (*infra*, IX.A), there is no dispute that plain weave burlap was a known choice for ride vehicles in prior systems (UATP-1029, 1; UATP-1020, 3; UATP-1030, 1-2); UATP-1045, 40:4-41:23. This corroborates the POSITA's motivation and reasonable expectation of success in utilizing this known construction with a nylon, in accordance with Phillips.

PO's attempt to argue sheeting and mesh are mutually exclusive is not remedied by its incorrect assertion that Phillips "expressly distinguishes" sheeting material from "nylon netting." POR, 53. Phillips never distinguishes the "nylon" of the bottom surface of the ride vehicle from "nylon netting" or any other kind of mesh, contrary to PO's false claims. POR, 53; UATP-1004, 4:38-49; UATP-1044, ¶¶49-50.

3. Nylon Mesh Was Known To Be Durable

Phillips expressly identifies nylon as durable, and a POSITA would have expected a mesh implementation to likewise provide sufficient durability, especially when appended to a ride vehicle. PO's flawed theory is not remedied by

assertion that "the durability of any mesh layer is significantly worse than sheeting, primary because sheeting incorporates more fibers." POR, 55; EX-2031, ¶16. PO's assertion is unsupported by any evidence that nylon mesh, in accordance with WN0400, would have been considered insufficiently durable for use in Phillips' system. POR, 55; EX2031, ¶16; UATP-1044, ¶51-53. Even if a POSITA could have implemented a more durable Nylon (which PO never identifies), doing so does not undermine the motivations for use of a Nylon mesh set forth in the Petition—namely to promote a low CoF and sourcing. Here again, PO's position is premised on an artificial distinction between sheeting and mesh (*supra*, §III.A.2), and a false assumption that "any mesh layer" has significantly worse durability than sheeting.

4. Attaching The Mesh Layer To The Ride Vehicle Was Routine For a POSITA

PO's assertions regarding how to attach a mesh and that the result would destroy any benefits of the combination (POR, 55-56, 58) mischaracterize Phillips and the combination. UATP-1044, ¶¶54-59. First, PO ignores that Phillips is not limited to adhesive attachment on the bottom at all, describing generally that the low friction membrane be "appended" to a ride vehicle. UATP-1004, 3:19-22, 10:18-20; UATP-1045, 68:10-70:14 (acknowledging it is "correct" that there are other ways besides adhesive to append

the material); UATP-1044, ¶54. A POSITA would have appended the mesh to the ride vehicle using any of a number of known techniques, consistent with Phillips teachings. *Id.*

PO alleges that adhesive "would permeate through WN0400" (POR, 55-57; EX2027, ¶150), but on cross-examination PO's declarant acknowledged that POSITA knew about "wicking" and would consider multiple factors when using adhesive. UATP-1045, 73:2-19; 71:12-1. A POSITA would have understood how to attach a mesh layer to a ride bottom such that adhesive does not permeate through pores. UATP-1045, 69:20-70:14; 71:24-6; UATP-1044, ¶¶55-59.

B. The Phillips-WN0400 Combination provides Element [1c]

As an initial matter, the POR never addresses the Petition's analysis that "a POSITA would have been prompted to select Teflon and nylon materials that achieve low friction between slide surface and vehicle (e.g., below the 0.15 CoF value that was "typical" of dry slides)," to promote a fast and exhilarating sliding experience. Pet., 30-31; UATP-1044, ¶60. This obviousness rationale provides an independent, unrebutted basis why the combination includes Element [1c]. Paper 9, 9.

Indeed, the '854 patent itself acknowledges that 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." UATP-1001, 1:43-56; UATP-1047, 25:5-9.

A POSITA would have readily implemented the slide using Teflon and nylon—known low friction materials—to achieve a CoF that was "low friction" relative to "typical" slides that lacked these materials. UATP-1044, ¶¶61-63; UATP-1004, 4:38:49; UATP-1045, 76:14-21.

PO asserts that "the lowest CoF" for any nylon mesh is "0.26," but this ignores the actual combination which involves interaction between nylon mesh and a Teflon surface. UATP-1044, ¶64. Numerous references cited by petitioner confirm that nylon-Teflon interactions (and Teflon-Teflon, nylon-nylon) are typically lower than 0.2, and often significantly lower (e.g., 0.04). *Supra*, §III.A.2.

PO's criticisms of the friction tables cited by Dr. Wang are unwarranted. POR, 65; EX2026, ¶¶61-69; UATP-1046, 111:14-113:20. First, nothing in the '854 patent claims requires testing using ASTM D1894[1]. *Supra*, §II.B. Second, the CoF values reflect the conventional definition of CoF and are from reliable sources (e.g., Oak Ridge National Laboratory). UATP-1001, 4:38-43; UATP-1044, ¶65.

[1] PO's purported deficiencies would apply to ASTM D1894 itself. Dr. Spiegelberg acknowledged that the ASTM D1894 is limited to testing "film" and "sheeting" materials—which PO alleges to exclude a mesh layer. UATP-1046, 111:14-113:20; UATP-1044, ¶67.

Third, the values corroborate the CoF values rendered obvious and achieved by Phillips-WN0400. *Id.*; *supra*, §III.A.2; UATP-1044, ¶66. Tellingly, PO never disputes the Petition's analysis that the prior art materials align with examples of the '854 Patent itself. *Id.*,

IV. PHILLIPS ANTICIPATES AND RENDERS OBVIOUS CLAIMS 1-4 AND 6-7 (GROUND 1A)

C. Phillips anticipates and renders obvious the claimed "mesh layer" ([1b-iii])

PO's arguments regarding Element [1b-iii] are based on an artificial distinction of "sheeting" and "mesh layer," and improper importation of limitations into the term. *Supra*, §§III.A.2-3. Even if not anticipated, a POSITA would have found obvious to implement Phillips' "nylon" as a permeable, woven fabric, like Phillips' "sailcloth," with a reasonable expectation of success. UATP-1044, ¶¶68-73; *supra*, §III.A

D. Phillips anticipates and renders obvious the claimed CoF range (Element [1c])

Phillips anticipates Element [1c] because (1) Phillips' expressly discloses "low friction" sheeting materials that would result in the CoF falling within the broad range claimed in the'854 patent, and (2) inherent properties of these sheeting materials establish that the CoF between the slide surface and the ride vehicle would be *at the low end of the claimed range*. UATP-1044, ¶¶74-76. Even if not anticipated (which Petitioner does not concede), a POSITA would have been

motivated to implement Phillips' Teflon slide surface and nylon ride vehicle to have a CoF within the claimed range. That is enough and provides an independent reason why Phillips renders obvious Element [1c]. *Supra*, §III.

The Petition and Dr. Wang's analysis set forth reasons why Phillips' "Teflon" slide surface and "nylon" ride vehicle would have been recognized as having a CoF within the claimed range. UATP-1044, ¶77; UATP-1001, 1:43-56; Pet., 26-31. POR does not address that the extremely broad claimed range encompasses "typical" non-lubricated surfaces. *Id.* PO alleges purported differences in morphology or other factors might impact CoF, but none of which would remove the Teflon and nylon of Phillips' system from the claimed range where Phillips expressly teaches "low friction" implementations. *Supra*, §II.B, §III.B (addressing ASTM D1984).

PO contended that "Petitioner's expert identifies zero personal experience or graduate education related to measurement and analysis in the field of CoF," but this is false. POR, 37. Dr. Wang's extensive CoF experience exceeds even PO's proposed POSITA definition. UATP-1044, ¶¶78-82.

V. PHILLIPS-FALLGATTER RENDERS CLAIMS 1-7 OBVIOUS (GROUNDS 2A)

The POR never specifically addressed the Petition's motivations to implement Phillips' slide using Fallgatter's suggestion to achieve a low numerical

CoF and a woven fabric vehicle bottom. Pet., 59-64; POR, 66-69; Paper 9, 9. Instead, PO disputes only that Fallgatter provides the claimed mesh layer and CoF range. UATP-1044, ¶83.

A. Phillips-Fallgatter provides [1b-iii]

Fallgatter expressly discloses a ride vehicle that uses a "woven textile" such as "nylon, polyester and polyethylene." UATP-1005, [0006], [0009]. PO asserts that "Fallgatter does not disclose a mesh layer," here again relying on an improperly narrowed interpretation. POR, 67; *supra*, §II.A. The combined system includes a woven, permeable material, providing a "mesh" even under PO's ASTM definition. *Id.*; UATP-1044, ¶¶84-86.

B. Philips-Fallgatter provides Element [1c]

Fallgatter provides a straightforward suggestion of numerical coefficient of friction values between the slide and vehicle in a slide system that a POSITA would have recognized as desirable to be below. Pet., 58-64; UATP-1003, ¶¶199-211; UATP-1044, ¶87. Thus, even if Phillips or Phillips-WN0400 didn't demonstrate that the resulting system achieves Element [1c], and motivations for doing so, Fallgatter provides additional teachings of desirable numeric coefficient of friction values that a POSITA would have been motivated to achieve in the resulting system. *Id.*

The petition and Dr. Wang's first declaration explained multiple reasons that a POSITA would have been motivated to implement Phillips to achieve a CoF within the numeric range that Fallgatter expressly provides. *Id.* . The POR instead focuses on a composition of Fallgatter's slide surface, but that is not the combination. UATP-1044, ¶88. Phillips expressly teaches desirability of "low friction" between slide and vehicle, which a POSITA would have recognized as enhancing the ride experience. UATP-1044, ¶89. To the extent PO alleges that a POSITA would not have a reasonable expectation of success in achieving a COF within the claimed range (which encompasses even "typical" slides), PO's theory is belied by the uncontroverted motivations to achieve low friction, and the known CoF values of nylon-Teflon interaction. UATP-1044, ¶¶90-91.

VI. PHILLIPS-FALLGATTER-WN0400 RENDERS CLAIMS 1-7, 14-17, 22-28 OBVIOUS (GROUND 2B)

PO challenges Ground 2B (Phillips-Fallgatter-WN0400) by repeating arguments raised in the context of Ground 1B (Phillips-WN0400) and asserting that the combination is a "hindsight reconstruction." Instead, Fallgatter provides additional express teachings of numeric CoF values to attain, and use of a "woven textile, further demonstrating the obviousness of a mesh layer and the claimed CoF range [1c], as discussed above. UATP-1005, [0043]; UATP-1006, 1; UATP-1044, ¶¶92-93.

VII. THE POR FAILS TO REFUTE THE PETITION'S SHOWING THAT CLAIMS 8-13 ARE NOT ENABLED (GROUND 3A)

The *Wands* factors make clear that claims 8-13 are not enabled. UATP-1044, ¶¶94-109. The Petition originally established that the claimed range was not enabled because, among other reasons, the claimed range approached the theoretical limits of materials measuring the CoF of ice-on-ice. Petition, 86-89 (citing UATP-1026, 5 (interactions between ice samples and a CoF between PTFE samples)). UATP-1044, ¶¶94-95.

Dr. Wang then filed an affidavit, corroborated by Exhibits UATP-1039-1041, establishing that the addition of lubricants is wildly unpredictable at the low end of the range and weak bonding of lubricant particles. UATP-1043, ¶¶1-31; UATP-1044, ¶¶96-102 (addition of lubricants can increase CoF). Dr. Wang pointed out that the technique relied on by the inventor, mechanical stirring, cannot be employed. UATP-1043, ¶¶22-26; UATP-1044, ¶¶101, 103.

PO turns to the testimony of Dr. Spiegelberg to establish that CoF in the recited range is routine. Response, 75 (referencing UATP-1026, 251-254. However, Dr. Spiegelberg is actually relying on materials that are not at issue in this case. UATP-1043, ¶¶18-21; UATP-1044, ¶95. Dr. Spiegelberg first cites to diamond-like carbon (DLC) materials with a CoF at .05. He then cites to "A review of the state of the art and perspectives on future research." Nowhere does

PO urge (or claim) the use of DLC in slides nor do they acknowledge that performance in this range would be "state of the art" or should be the subject of "future research."

Mr. Schmit only reinforced the lack of enablement. Regarding the *Wands* factor on the existence of a working sample, Mr. Schmit confirmed that he did no CoF testing at SkyZone nor did he keep a lab notebook. UATP-1044, ¶¶97, 104-105. Further, as to the *Wands* quantity of experimentation factor, Mr. Schmit "experimented with hundreds of different materials over many, many years. " UATP-1047, 27:2-28:5. He noted, "it was continued failure after failure, back to the drawing board that went on for many years." *Id*. In fact, Mr. Schmit referenced "hundreds" of tests and variables no less than sixteen times during his deposition. When asked about the extent of testing, he noted, "there's just too many variables to list." UATP-1047, 43 (tests involved "experimenting and failing and experimenting and failing and -- just kept going and going"); 33:3-24. When asked if each test was time consuming, he answered, "Years." *Id*. Each test would require, "Hours or sometimes weeks." *Id*.

The '854 patent never provides a roadmap for how these materials should be processed or treated to achieve the claimed CoF range. UATP-1043, ¶¶11-17. Dr. Spiegelberg conceded that no such roadmap exists in the '854 patent. UATP-1046, 130:2-10 ("does not provide any information about how they are mixed together",

does not "describe the process" by which the materials are combined, does not describe the temperature or the curing process). UATP-1044, ¶¶105-106.

Dr. Spiegelberg also acknowledged that the '854 patent does not identify a formulation that would achieve the lowest end of claimed range, and did not rule out that the materials of the 854 patent might have a CoF above the claimed range. UATP-1046, 133:11-14 (admitting that embodiments of the '854 patent do not achieve a coefficient of friction of 0.03), 133:15-144:4. Dr. Spiegelberg's testimony provides no additional insight into how the materials described in the '854 specification should be combined or processed to achieve performance associated with the recited CoF. UATP-1044, ¶¶107-109.

Quite simply, the extraordinary degree experimentation performed by Mr. Schmit, paired with minimal disclosure in the '854 patent, further reinforces the assertion that claims 8-13 of the '854 patent are not enabled.

VIII. CLAIMS 5 AND 26 ARE INDEFINITE (GROUND 3B)

The testimony of the inventor reveals that their testing routine would encompass multiple coatings, thereby rendering the claim indefinite. Mr. Schmit noted, "we generally would either **overapply** or **reapply** or **strip down**." UATP-1044, ¶¶110-111 (citing UATP-1047). In addition to the analysis set forth in the Petition (Pet., §VI.F), it remains unclear whether claim 5 encompasses overapplied

coatings, reapplied coatings, or coatings that were applied after being stripped down. *Id.*

IX. PO'S SECONDARY CONSIDERATIONS ARE DEFICIENT

PO's secondary considerations suffer from multiple fatal defects, the most incredible of which is that PO relies heavily on the "Launch Slide," a product Mr. Schmit and PO's own evidence confirm was ***sold and in commercial use more than a year before*** the '854 patent's earliest priority date. *Infra*, §IX.A. Thus, to the extent PO attempts to credit secondary considerations to its current commercial products, PO fails to provide any distinctions as to its own pre-dated products. There appear to be none—Mr. Schmit confirmed PO's slides have included the "core inventive features" since the "first installations" and explained that PO's "slides would not function without '854." *Infra,* §IX.A. Thus, secondary considerations PO alleges to be a consequence of embodying the claimed features are in fact due to features that predate the '854 patent. The secondary considerations PO raises simply cannot be attributed to the '854 patent claims.

PO's secondary considerations suffer from additional, independent fatal flaws. Far from being a "perfect correspondence" that PO alleges (POR, 93), PO's identified commercial products in fact utilize unclaimed features that directly impact CoF (e.g., a liquid oil lubricant applied to the slide surface that PO calls "slick sauce"), and a variety of profiles and shapes to dictate the rider's experience by

launching the rider in the air, swirling around a bowl, racing multiple riders, among others, none of which are claimed by the '854 patent. *Infra*, §IX.B; EX2043, 2-10. The significance of these other features are highlighted by numerous U.S. patents directed to these features unclaimed by the '854 patent. *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1377–78 (Fed. Cir. 2019).

A. PO's analysis is directed to products that pre-date the '854 patent

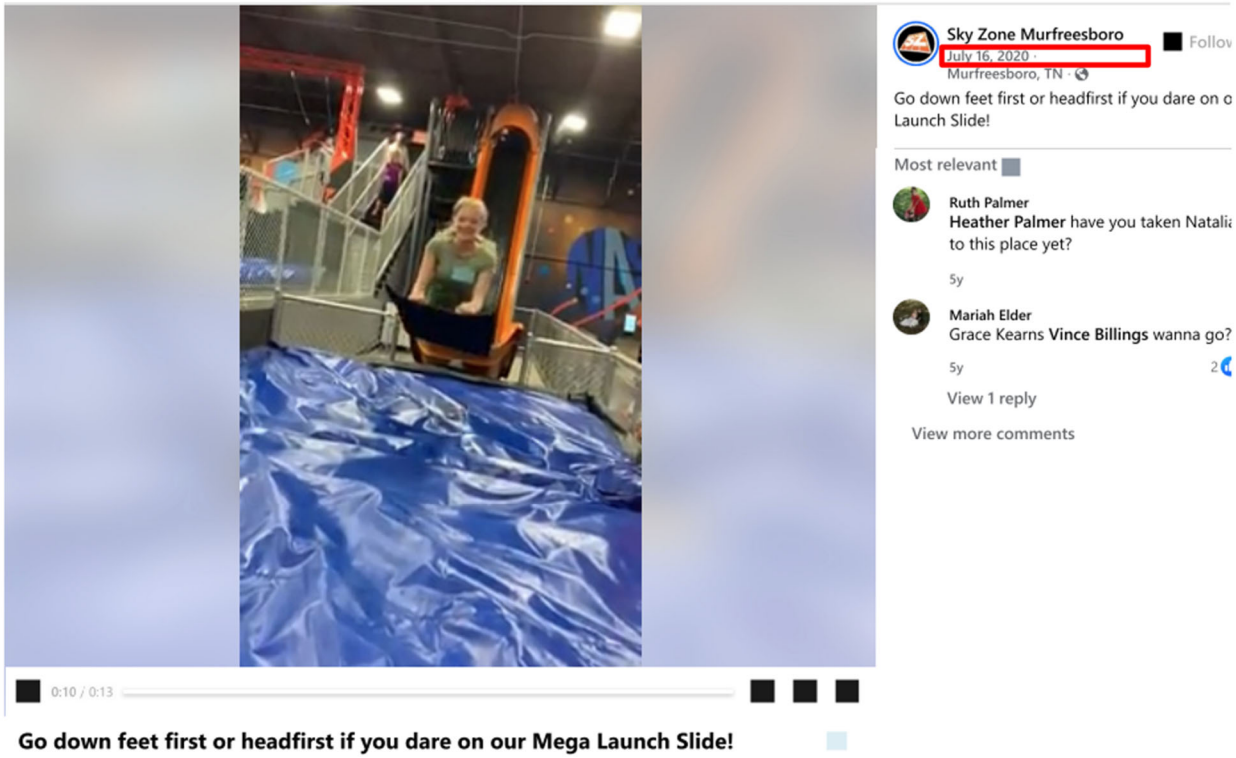
The "Launch Slide" presented by PO as an embodying product in its secondary considerations analysis shares all relevant features with PO's Launch Slides that were sold and in commercial use at least by 2020, more than one year before the earliest claimed priority date of the '854 patent (Nov. 1, 2022). This timing is confirmed by PO's EX2045[2], which quotes Bron Launsby, the CEO of Slick City Franchise Group and original purchaser on behalf of a SkyZone location:

> After its founding in 2021, Slick City's first location opened in Denver in early 2022. Launsby said the idea for the concept came to him in 2020, when he installed a slide feature at the Sky Zone trampoline park he formerly owned.
>
> The equipment, built by Slick Slides, was a fast hit, and it led Launsby to approach its developer, Gary Schmit, about a new business venture.

[2] The 2020 date was omitted from PO's EX2045. A complete version of the article is submitted as UATP-1050.

UATP-1050, 1-2 (annotated); EX2045, 6-7.

Other publications corroborate the 2020 timeframe of PO's first installations":



UATP-1058-59, 1 (annotated); UATP-1060 through UATP-1068; UATP-1069, 1; UATP-1072 and -1073.

Mr. Schmit likewise confirmed the first sale and installation at SkyZone (UATP-1047, 28:9-23), and indicated the "first installations" included the "core inventive components" of the 854 patent:

> **Since the introduction of Slick Slide's first installations,** core inventive components of its recreational slide systems have remained

> the same: a **non-wet lubricated slide surface** working in combination with a ride vehicle incorporating a **woven mesh bottom surface**.

EX2033, ¶43 (emphasis added). Mr. Schmit repeatedly explained that Slick Slide's products, including the "Launch Slide," not only included that '854 patent's claimed features, but that the slides "would not function without '854" and the rider "wouldn't get off the end of the slide" if the '854 features weren't included. UATP-1047, 162:2-164:24, 68:12-15; *see also id*.; 66:23-68:15 (attributing praise and success to features of initial pre-dated Launch Slide); *id.*, 53:9-55:8.

Simply put, PO attributes "mesh layer" and CoF features to its secondary considerations, but fails to demonstrate those features were not in its pre-dated products, and Mr. Schmit instead repeatedly admitted they were present. *See, e.g.*, *Campbell Soup Co. v. Gamon Plus, Inc.*, 10 F.4th 1268, 1277, 1278 (Fed. Cir. 2021) (indicating PO cannot tie secondary considerations to aspects "that were already present in the prior art."). PO's secondary considerations fail for this independent reason.

B. The purported commercial products are not "coextensive with" the '854 claims.

PO incorrectly contends that "Slick Slide's commercial recreational slide system embodiments are a perfect correspondence to the claimed invention of claim 1 of the '854 patent." POR, 87. Instead, the purported slides include additional

critical unclaimed features—PO's slides utilize a liquid lubricant called "slick sauce" that is applied when a slide its observed to be "performing slower" (EX2045, 52), include numerous ride features intended to create distinct experiences, and are the subject of numerous other patents. Where "the products include a 'critical' unclaimed feature not covered by the independent claims," the claims are not coextensive. *Id. Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1377–78 (Fed. Cir. 2019).

1. PO failed to demonstrate that the purported commercial slides provide Element [1c]

PO relies on a single sentence citing ¶54 of the Dr. Spiegelberg declaration for its assertion that the purported commercial slide CoF embodies Element [1c]. POR, 86. But the test report Dr. Spiegelberg references does not identify what was tested or where the test samples originated. UATP-1046, 69:4-71:16; 34:20-35:2; 59:25-18. Dr. Spiegelberg testified that he did not know the material composition of the mesh or slide material samples beyond speculating the slide material was an epoxy resin, of which there could be "hundreds, or thousands" of different compositions. *Id.* Nor is there evidence whether an unclaimed liquid oil, described below, was on the sample.

Even if testing had been performed on a post-'854 commercial slide surface, it would not support secondary considerations because PO fails to present any

evidence that PO's pre-dated slides lack the claimed CoF range. EX2033, ¶43; UATP-1047, 162:2-164:24, 68:12-15.

2. The purported commercial slides utilize an unclaimed liquid oil lubricant

While PO's analysis is premised on a purported low CoF between the ride vehicle and slide surface, in commercial use a liquid oil lubricant is applied to the slide surface that facilitates sliding between the ride vehicle and slide surface. PO's own materials include a Slick City manager explaining "if we see a slide performing slower, we can use a special oil. We call it the 'slick sauce.'" EX2045, 52; *see also* UATP-1049, 3:25 (Slick City representative characterizing as "frictionless" ride experience and indicating "we also oil the slide with a special oil"). A liquid oil lubricant is a critical unclaimed feature, impacting CoF. UATP-1044, ¶112. Tellingly, oil is mentioned in the '854 patent, yet omitted from any claim. EX1001, 4:66-7:2.

3. The commercial slides include distinct ride features and are the subject of numerous patents.

PO's assertion of a presumption of nexus ignores meaningful additional features of the commercial slides that are unclaimed by the '854 patent but featured in other patents, materials, and rider feedback. *Fox Factory*, 944 F.3d at 1375.

Beginning with the "Launch Slide," PO's own marketing materials, and Mr. Schmit's testimony, confirm the profile and geometric features that go to the heart of the rider experience, launching riders completely airborne. EX2043, 2 ("airtime"); UATP-1047, 103:19-105:23 ("[a]bsolutely" an attraction). *Id.*

Neither the launch effect, nor the slide profile and geometric features that create the launch effect, are claimed by the '854 patent.

Notably, the launch slide profile and geometric features are covered in other U.S. patents. The claim of USD1,065,407, for example, is specifically directed to the launch profile defined by slide surface (solid lines), omitting all other features of the slide (broken lines):

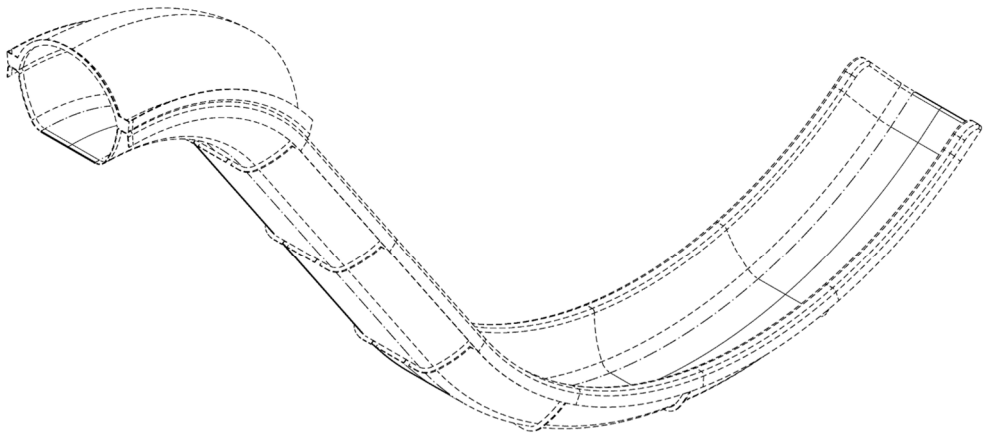


FIG. 1

USD1,065,407

As to its other slides, Slick Slide's own website acknowledged distinct geometric features that create a unique rider experience, and which are the subject

of U.S. patents unrelated to the '854 patent. EX2043, 2-11; EX1047, 115:16-24 ("[e]veryone has got their own kind of favorite and what appeals to them"), *see generally*, 103:19-123:17; EX1047, 108:7-18 ("circular motion, kind of like a toilet bowl"); UATP-1047, 127:20-130:22.

The geometric features that launch riders airborne or generate other distinct rider experiences "go to the 'heart' of Patent Owner's patent." *Fox Factory*, 944 F.3d at 1375. And there is no evidence that the "launch" features "amount to nothing more than additional insignificant features," particularly where PO has sought patents specific to each of its slides and directed to geometric features that provide the "launch" and other rider experiences. *Id*.

C. PO has not established nexus because the purported secondary considerations are not reliable and are not tied to the Challenged Claims

Without the presumption, PO bears the burden of establishing nexus by showing the purported secondary considerations are the "direct result of the unique characteristics of the claimed invention." *Fox Factory*, 944 F.3d at 1373-74. The evidence here is woefully deficient.

1. PO's purported praise is based on its own press releases and marketing materials, not third-party industry praise.

PO's assertions of industry praise amount to a single conclusory paragraph without citation to any documentary evidence, and incorporation of dozens of

paragraphs from the Schmit Declaration. POR, 91. While his declaration cited to EX2045, Mr. Schmit indicated "I'm not" familiar with EX2045 and that he didn't compile EX2045. UATP-1047, 97:24-98:3.

Exhibit 2045 includes paid placements prepared by public relations firms on behalf of Slick City. *See, e.g.*, EX2045, 47; UATP-1047, 101:2-103:3. Other articles were likewise identified as "paid press release." UATP-1047, 101:2-103:3.

Marketing materials and talking points from PO, its commonly-owned sister company, and paid agents, are not evidence of industry praise.

As to substance, Mr. Schmit indicated a quote from the CEO of Slick City (EX2045, 52, 59) "seemed like a little bit of fluff to me" and "the marketing department has their own strategy at play, so I don't know where this came from exactly." UATP-1047, 99:3-100:5. Worse, Mr. Schmit confirmed the statement wasn't true—he was not aware of any "former astrophysicists at NASA" or multiple professors of tribology working on the slides. UATP-1047, 99:23-100:19; *see also*, *id.* 47:17-50:6. Similar quotes were repeated in multiple other PR articles appearing in EX2045.

2. PO's purported commercial success is not based on sales or market share tied to challenged claims.

PO alleges "rapid and sustained growth," "incredible sales," and "market share growth," yet failed to present documentary financial data. UATP-1047, 142:1-

4 ("He is my financial records"). The Schmit Declaration alleged total sales numbers for Slick Slide, but Mr. Schmit was unable to speak to the timing and scope of those sales. UATP-1047, 13:16-14:6; 143:1-4; 143:11-145:21.

The Schmit Declaration alleged $40M in recreational slide sales, but that includes sales that pre-dated the earliest priority date of the '854 patent, and non-U.S. sales. UATP-1047, 138:22-140:13; 141:24-148; EX2033, ¶18. PO presents no financial data, and thus no evidence that the bulk of those sales weren't prior art sales. *See also*, UATP-1047, 146:24-148:1.

The Schmit Declaration cites revenues of $16M for Slick City, but here again Mr. Schmit did not cite financial records to support those numbers, and did not provide any accounting of what is encompassed with those sales. UATP-1047, 150:13-152:2; *see also id.*, 148:1-150:12, . Additionally, PO failed to distinguish between fees to purchase a franchise, ongoing monthly royalty payments, rebates from vendors, and whether any of the purported revenues include marketing fees franchises are required to pay to Slick City as part of franchise agreements. Mr. Schmit was also unable to confirm even basic facts associated with the purported revenues, such as how many locations generated those revenues. UATP-1047, 150:13-152:2. General assertions that all of this revenue is attributable to slides is insufficient (and contrary to the evidence of record).

Slick City includes a range of attractions and revenue sources. The Slick City website landing page marketing "Air Courts" in the same heading as slides. EX2044, 3; UATP-1047, 154:3-155:6. Slick City also generates a significant portion of revenue from food & beverage sales (UATP-1047, 155:11-13), often in coordination with group events hosted by dedicated Slick City event staff. *Id.*, 155:7-156:22. Slick City provides operational support to franchisees intended to promote the customer experience and drive repeat sales. *Id.*, 136:12-137:1.

Additionally, revenue numbers untethered to market share do little to demonstrate commercial success, and PO lacks evidence of market share or market share growth. *See, e.g., In re Applied Materials, Inc*., 692 F.3d 1289, 1300 (Fed. Cir., 2012). The Schmit Declaration alleged Slick Slide holds "approximately 70% of the high-performance dry slide market," but PO never explained what it defines as "high-performance" dry slides or what suppliers are encompassed in that purported segment of the market. Rather, Mr. Schmit acknowledged it's just "based on my experience and opinion" and not a category that's tracked in the Family Entertainment Center market. UATP-1047, 145:16-21.

The FEC market as a whole was poised for growth emerging from COVID in 2020, around the time Slick City was entering the market. PO presents no information as to how its growth compared to the FEC market or similar venues. UATP-1047, 158:1-6; EX2045, 8 ("especially challenged during the pandemic"),

114 ("post-pandemic landscape"). More, Mr. Schmit acknowledged that sales tend to drop after opening, and that franchise locations opened in 2024 or 2025 haven't been open long enough to see what the plateau recedes to. UATP-1047, 152:3-153:9.

3. PO's other assertions are unsupported

PO alleges "long felt" and "unsolved" need and unexpected results, but fails to present any evidence, and fails to identify any failure of others. PO alleges copying, but does not identify copying of claimed features, instead focusing again on features in the prior art. PO alleges similarity of slide names, but Mr. Schmit acknowledged in his testimony in an unrelated district court proceeding "it's a general term that is kind of referred to for this type of slide." UATP-1055, 24:5-13. To the extent PO's secondary considerations are tied to CoF, they fail as to independent claims 22 and 25 that do not recite CoF at all.

X. POSITA

Dr. Wang more than meets the standard even under PO's definition, which is inconsistent with the '854 patent. UATP-1044, ¶¶4-8, 31-32; UATP-1047, 26:1-25 ("I'm not qualified"); 69:4-10, 73:3-74:15, 77:2-78:11, 86:11-87:1.

Notably, PO's declarations are entitled to little weight—Dr. Rust indicated "I was the one that - - that wrote the declaration," yet his declaration is nearly verbatim identical to the Dr. Spiegelberg declaration despite indicating he didn't

discuss with Dr. Spiegelberg, and whose opinions were "[p]rovided to me by counsel." UATP-1045, 22:24-23:23; 34:14-36:7; *see also* UATP-1045, 14:7-19:3.

XI. REAL-PARTIES-IN-INTEREST

On Nov. 14, 2025, PO raised for the first time that PO was investigating real-parties-in-interest, and indicated its basis a belief that corporate counsel is employed exclusively by "Unleashed Brands LLC." PO is incorrect. *See* UATP-1070, 1; UATP-1071. While Petitioner disputes any suggestion that the Petition did not properly identify all RPIs, Petitioner hereby submits updated mandatory notices listing parent entities of Petitioner (UA Holdings, LLC; Leviathan Intermediate Holdings, LLC; Unleashed Brands, LLC), and additional subsidiaries (UA Attractions, LLC; UASUA, LLC; Ridgmar Urban Air, LLC; Manchester Urban Air, LLC; Brockton Urban Air, LLC), purely for the avoidance of doubt. *See Adello Biologics LLC v. Amgen Inc.*, PGR2019-00001, Paper 11 (February 14, 2019) (PTAB Precedential). UA Attractions, LLC provides attractions to Franchisees and UASUA, LLC, Ridgmar Urban Air, LLC, and Manchester Urban Air, LLC are corporate stores that operate in Southlake, Texas, Orange, CT, and Manchester, CT, respectively. Petitioner notes the presence of additional subsidiaries in the Unleashed Brands family that are unrelated to the business of UATP Management, LLC, Family Entertainment Centers, and recreational slide systems, and which

accordingly are not RPIs. Petitioner also notes there are dormant/inactive entities, including Learn & Fly Southlake, and Fidele, LLC, that are likewise not RPIs.

Dated: November 26, 2025

/Thomas A. Rozylowicz/
W. Karl Renner, Reg. No. 41,265
Thomas A. Rozylowicz, Reg. No. 50,620
Craig A. Deutsch, Reg. No. 69,264
Kiersten M. Batzli, Reg. No. 75,476
Cameron A. Ubel, Reg. No. 77,081
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

Attorneys for Petitioner

CERTIFICATION UNDER 37 CFR §42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response 6,858 totals words, which is less than the 7,200 allowed under 37 CFR § 42.24(c)(4) and the Board's email of November 26, 2025.

Dated: November 26, 2025

/Thomas A. Rozylowicz/

W. Karl Renner, Reg. No. 41,265
Thomas A. Rozylowicz, Reg. No. 50,620
Craig A. Deutsch, Reg. No. 69,264
Kiersten M. Batzli, Reg. No. 75,476
Cameron A. Ubel, Reg. No. 77,081
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

Attorneys for Petitioner

Proceeding No.: PGR2024-00054
Attorney Docket No.: 58544-0002PS1

CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on November 26, 2025, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response and associated exhibits, were provided via email, to the Patent Owner by serving the email correspondence address of record as follows:

Brett A. Schatz
Louis H. Sitler
Wood, Herron & Evans LLP
600 Vine Street Suite 2800
Cincinnati, OH 45202

Email: bschatz@whe-law.com
lsitler@whe-law.com

Attorneys for Patent Owner

/Esther Goldschlager/
Esther Goldschlager
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
goldschlager@fr.com