

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SHARKNINJA, INC.,
SHARKNINJA OPERATING LLC,
SHARKNINJA MANAGEMENT LLC, AND
SHARKNINJA SALES COMPANY**
Petitioners,

v.

DYSON TECHNOLOGY LIMITED,
Patent Owner

Inter Partes Review No.: IPR2024-00993
U.S. Pat. No. 11,044,979

PATENT OWNER'S PRELIMINARY RESPONSE

Table of Contents

	Page
I. INTRODUCTION	1
II. OVERVIEW OF THE '979 PATENT.....	7
III. OVERVIEW OF ALLEGED PRIOR ART.....	15
A. Saito (EX1004)	15
B. Lindsey (EX1005).....	18
C. Schepisi (EX1006).....	25
D. Nicolas (EX1007)	26
E. Shoemaker (EX1009).....	27
IV. PERSON OF ORDINARY SKILL IN THE ART	27
V. CLAIM CONSTRUCTION.....	28
VI. PETITIONERS HAVE NOT ESTABLISHED A REASONABLE LIKELIHOOD THAT ANY CHALLENGED CLAIM IS UNPATENTABLE	29
A. The Saito-Lindsey Combination Does Not Teach or Suggest Claim Limitations [1f] and [17f]	29
1. The Combination Of Saito/Lindsey Does Not Render Limitations [1f] and [17f] Obvious	29
2. PO’s Experiment Confirms That Lindsey’s Vanes Do Not Encourage Hair To Automatically Wrap Around The Cylindrical Portion Of The Attachment	36
3. Petitioners’ Saito/Lindsey “Model” Is A False Representation Of The Saito/Lindsey Combination That Would Not Have Been Obvious.....	41
4. No Claim Limitation is Inherent.....	62
B. Secondary Considerations Weigh in Favor of Non-Obviousness of the Challenged Claims	63
1. Commercial Success	69
2. Industry Praise	76
3. Copying.....	79
4. Long-felt, but unmet need (Failure of Others).....	80

Patent Owner’s Preliminary Response
IPR2024-00993

5.	Unexpected results	83
6.	Initial skepticism by experts	84
VII.	DISCRETIONARY DENIAL UNDER § 325(D) IS APPROPRIATE	85
VIII.	CONCLUSION.....	86

LISTING OF EXHIBITS

Exhibit No.	Description
EX2001	Expert Declaration of Peter Bressler, FIDSA
EX2002	Claim Chart for Airwrap HS01
EX2003	Claim Chart for Airwrap HS01 (Tapered Barrel)
EX2004	Claim Chart for Airwrap HS05
EX2005	Claim Chart for Airwrap HS05 (Tapered Barrel)
EX2006	Claim Chart for SharkNinja FlexStyle
EX2007	Claim Chart for SharkNinja FlexStyle (Tapered Barrel)
EX2008	Complaint, <i>SharkNinja Operating LLC v. Dyson, Inc.</i> , No. 1:23-cv-11277-ADB (D. Mass. June 6, 2023), ECF No. 1
EX2009	“Dyson Airwrap Styles Your Hair With No Heat” Video (accessed: https://www.youtube.com/watch?app=desktop&v=Ek7jXCQLDig)
EX2010	Portions of May 15, 2024 Tweedie Deposition (De-Designated Portions)
EX2011	Portions of May 30, 2024 Marra Deposition (De-Designated Portions)
EX2012	Portions of Appellant Brief, <i>Dyson Tech. Ltd. v. SharkNinja France et al</i> , Cour d’appel [CA] [regional court of appeal] Paris, Chambre 1, Apr. 4, 2024, 23/16419 (Fr.).]
EX2013	Video from Expert Opinion from Nullity Action regarding Chinese Patent Application No.: 201520158687.1
EX2014	“Future Of Beauty Awards,” Elle Magazine (accessed: https://www.elle.com/beauty/a41957789/future-of-beauty-awards-2022/)
EX2015	“Inside The Success Of Dyson Hair—And Its Decision To Redesign The Bestselling Airwrap Tool,” Forbes, June 11, 2022 (accessed: https://www.forbes.com/sites/gabbyshacknai/2022/06/11/inside-the-

Patent Owner's Preliminary Response
IPR2024-00993

Exhibit No.	Description
	success-of-dyson-hair-and-its-decision-to-redesign-the-best-selling-airwrap-tool/)
EX2016	DYSON_0130760-786 – ELLE's 2019 Future of Beauty Awards
EX2017	DYSON_0129925-943 – ELLE Future of Beauty Winner 2022
EX2018	DYSON_0130828-830 – One-Step Glam
EX2019	DYSON_0130831-914 – The 100 greatest innovations of 2019
EX2020	<i>Dyson Tech. Ltd. v. SharkNinja Europe Ltd.</i> , EWHC (Pat) Claim No. HP-2023-000027, Amended Reply to Defence to Counterclaim
EX2021	Shark's Supplemental Response to Dyson's Interrogatory No. 20 (5/20/2024
EX2022	"The Science Behind Dyson's New Airwrap Hair Styling Tool Is Super Intense," Bustle, October 15, 2018 (accessed: https://www.bustle.com/p/how-does-the-dyson-airwrap-work-this-innovative-piece-of-tech-will-make-hair-styling-absolute-breeze-12262887)
EX2023	"Dyson AirWrap And The Coanda Effect That Provides A Barrel Of Curls," Women Love Tech, November 28, 2018 (accessed: https://womenlovetech.com/dyson-airwrap-coanda-effect/)
EX2024	DYSON_0130105-121 – Introducing Cosmo's First-Ever Hair Awards
EX2025	DYSON_0037352-356 – Dyson Just Launched 6 New Airwrap Styler Attachments
EX2026	"The Dyson Airwrap's Secret Sauce Is Jet Engine Tech," Mashable, May 19, 2022 (accessed: https://mashable.com/article/dyson-airwrap-coanda-effect-review)
EX2027	"The Dyson Airwrap: Because Bad Hair Days are So Last Season," Vogue Arabia, September 18, 2023 (accessed:

Patent Owner's Preliminary Response
IPR2024-00993

Exhibit No.	Description
	https://en.vogue.me/beauty/dyson-airwrap-coanda-effect-tools-results/#:~:text=With)
EX2028	Image of FlexStyle Packaging
EX2029	Image of FlexStyle Packaging
EX2030	Image of Lindsey Commercial Embodiment
EX2031	Image of Modified Lindsey Commercial Embodiment
EX2032	Video of Lindsey Commercial Embodiment
EX2033	Video of Modified Lindsey Commercial Embodiment
EX2034	Image of Lindsey Commercial Embodiment
EX2035	Image of Lindsey Commercial Embodiment
EX2036	HD400 Series Shark FlexStyle™ Air Drying & Styling System Style Guide (accessed: https://support.sharkclean.com/hc/en-us/article_attachments/8830005972764)
EX2037	“Dyson Airwrap vs. Shark Flexstyle: We put these top-tier multi-stylers to the test,” CNN, April 24, 2023 (accessed: https://www.cnn.com/cnn-underscored/reviews/shark-flexstyle-vs-dyson-airwrap)
EX2038	“I Finally Know How to Style My Hair Thanks to the Shark FlexStyle,” Marie Claire, March 2024 (accessed: https://www.marieclaire.com/beauty/shark-flexstyle-review/)
EX2039	DYSON_0037202-266 – Best of Beauty 2020
EX2040	“The 20 Best Beauty Splurges of 2021,” Allure, September 15, 2021 (accessed: https://www.allure.com/gallery/best-of-beauty-luxury-beauty-product-winners)
EX2041	DYSON_0037267-302 – The 20 Best Beauty Splurges of 2021

Patent Owner's Preliminary Response
IPR2024-00993

Exhibit No.	Description
EX2042	DYSON_0037591-620 – <i>Allure</i> Best of Beauty Awards 2023: Luxury & Splurges
EX2043	DYSON_0130105-121 – Introducing Cosmo's First-Ever Hair Awards
EX2044	DYSON_0130030-059 – Summer Beauty Awards 2022
EX2045	DYSON_0129693-710 – The High-Tech Beauty Tools We Geeked Out Over This Year – and Think You Will, Too
EX2046	DYSON_0129892-924 – Good Housekeeping's 2019 Beauty Awards
EX2047	DYSON_0129954-971 – Women's Health Beauty Awards 2019: Meet the Winners
EX2048	DYSON_0130270-296 – Introducing The Women's Health 2021 Healthy Hair Awards Winners
EX2049	DYSON_0037448-530 – Glamour Beauty Power List 2020
EX2050	DYSON_0130131-164 – The 2020 Esquire Gadget Awards
EX2051	DYSON_0130730-734 – The 2021 Gloss Angeles Awards Ceremony
EX2052	DYSON_0129972-994 – The Harper's Bazaar Best of Beauty Awards 2022 Winners
EX2053	DYSON_0129833-848 - 2022 Hair Awards: The Best Products of the Year
EX2054	DYSON_0129805-819 - Hair Awards: The 31 Best Hair Products of 2023
EX2055	"#ELLEReveals: All The Products That Won At ELLE Beauty Awards 2022," Elle, November 15, 2022 (accessed: https://elle.in/elle-beauty-awards-2022-product-winners/)
EX2056	DYSON_0130019-029 – TheBeauLife Beauty Awards 2022

Patent Owner's Preliminary Response
IPR2024-00993

Exhibit No.	Description
EX2057	DYSON_0130434-461 – Unveiling the Winners of the Tatler Beauty Awards 2022
EX2058	DYSON_0130602-633 – The 27 Best Hair Styling Products and Tools of 2022
EX2059	DYSON_0130324-355 – Best in Black Beauty Awards 2023: Hair
EX2060	DYSON_0129944-945 – Best Beauty Tools & Devices
EX2061	DYSON_0129644-665 – The Stylist Best Beauty Awards 2023: Haircare Winners
EX2062	DYSON_0129711-717 – Cosmetic Executive Women (CEW) Honors the Best in Beauty
EX2063	DYSON_0129782-793 – Bustle, 16 Makeup Hair & Skin Care Gifts That Will Thrill Your Favorite Beauty Lover
EX2064	DYSON_0129799-804 – The Best Hair Hot Tools
EX2065	DYSON_0130010-018 – Canstar Blue's Innovation Excellence Awards 2024
EX2066	DYSON_0129824-832 – 2 Best Beauty Devices of 2023 Tried and Tested
EX2067	“Sharper Image Revel Hair 6-in-1 Multi-Styler,” Sharper Image website (accessed: https://www.sharperimage.com/view/product/Sharper+Image+Revel+Hair+6-in-1+Multi-Styler/209383)
EX2068	Disclosure of Amy Johnson
EX2069	Refurbished first-generation Dyson Airwrap™ styler Complete (Nickel/Fuchsai) (accessed: https://www.dyson.com/outlet/refurbished-hair-stylers/airwrap/complete/nickel-fuchsia)

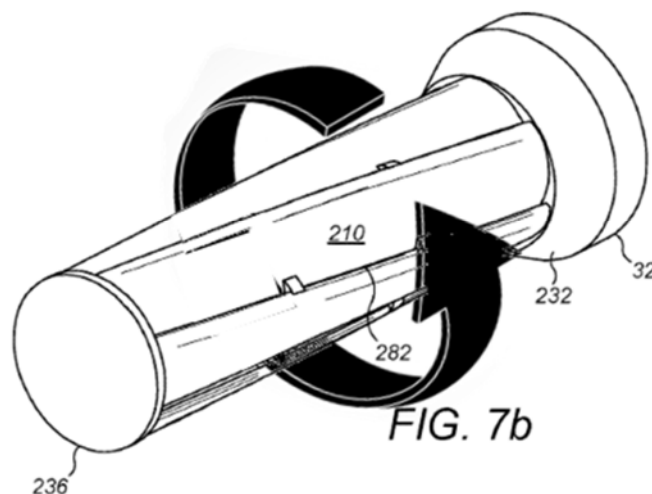
Patent Owner's Preliminary Response
IPR2024-00993

Exhibit No.	Description
EX2070	“Hair Styler Soft Curls for Wavy Hair with the Shark FlexStyle™ .95” Auto-Wrap Curlers” Video (accessed: https://www.youtube.com/watch?v=kMKtGb2wWrk)
EX2071	“How to Use the Shark Flexstyle – Shark Flexstyle Review” Video by Stacy Rody (accessed: https://youtu.be/aSmaPyE4HQQ)
EX2072	“Hair Styler Soft Curls for Straight Hair (Shark FlexStyle™) Video (accessed: https://www.youtube.com/watch?v=rurcIIhIvmo)
EX2073	“How to create voluminous curls with the Dyson Airwrap™ styler” Video (accessed: https://www.youtube.com/watch?v=5IBhaI2JeEo)
EX2074	“Dyson Airwrap™ Tutorial: A guide on how to get started with your Dyson Airwrap™ multi-styler” Video (accessed: https://www.youtube.com/watch?v=5Auip2NyP8A)
EX2075	“Winner of an Allure Best of Beauty Award 2023, Dyson Airwrap™ multi-styler and dryer Complete Long Nickel/Copper” (accessed: https://www.dyson.com/hair-care/hair-stylers/airwrap/complete-long-nickel-copper)
EX2076	“Dyson Airwrap™ multi-styler and dryer Complete Long Nickel/Copper” (accessed: https://www.dyson.com/hair-care/hair-stylers/airwrap)
EX2077	Portions of September 5, 2024 Carl Meinhart, Ph.D. Deposition (De-Designated Portions)

I. INTRODUCTION

Patent Owner Dyson Technology Limited (“PO”) submits this preliminary response to the Petition for *Inter Partes* Review (“Petition”) of US 11,044,979 (“the ’979 patent”) (EX1001), filed by SharkNinja, Inc., et al. (collectively, “Petitioners” or “SharkNinja”).

The Petition presents only obviousness challenges that rely on improper hindsight. Claims 1 and 17 of the ’979 patent are directed toward a cylindrical attachment for an apparatus such as a forced-air styling brush that with an “outlet” (e.g., a slot 282) as shown below. Limitations [1f] and [17f] require that the “outlet” be configured to direct air emitted from the outlet “to form a circumferential fluid flow around the cylindrical second portion of the attachment” as indicated by the arrow in the image below:



EX1001, FIG. 7b (arrow annotation added). This circumferential fluid flow is the result of a phenomenon known as the Coanda effect. Limitations [1f] and [17f] further recite that this circumferential fluid flow “encourages hair to automatically wrap around the cylindrical second portion” as shown in the image below of the Dyson Airwrap which is a highly successful commercial embodiment of at least the invention of claims 1 and 17 of the '979 patent:



EX2009.

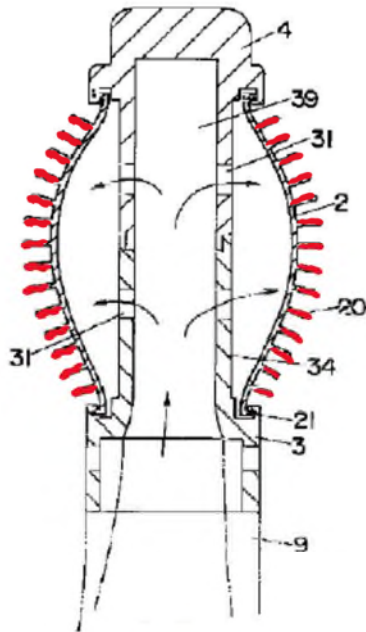
The challenges in the Petition rely on two references, Saito and Lindsey. Neither reference discloses either the circumferential fluid flow or the automatic hair wrapping features of limitations [1f] and [17f]. In a flawed attempt to overcome this fundamental deficiency, Petitioners' expert Dr. Nosenchuk created a

model that combined parts of Saito and Lindsey. But in order to make that model function to create a circumferential fluid flow that encourages hair to automatically wrap as required by limitations [1f] and [17f], Petitioners' expert made no less than eight (8) hindsight-driven modifications to those parts, only two of which he acknowledged in his declaration. The end result of these hindsight-driven modifications was a model that unsurprisingly looked nothing like Saito or Lindsey, but instead was a near copy of the embodiment disclosed in FIG. 7b of the '979 patent:

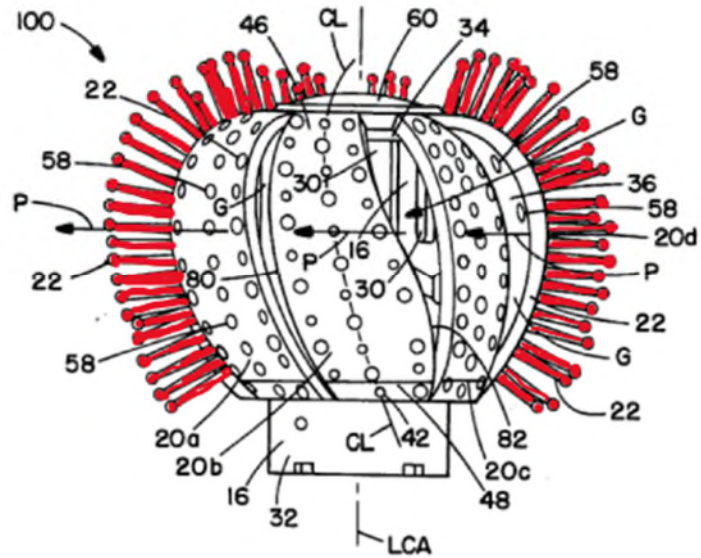
Saito

Lindsey

(Figure 1)

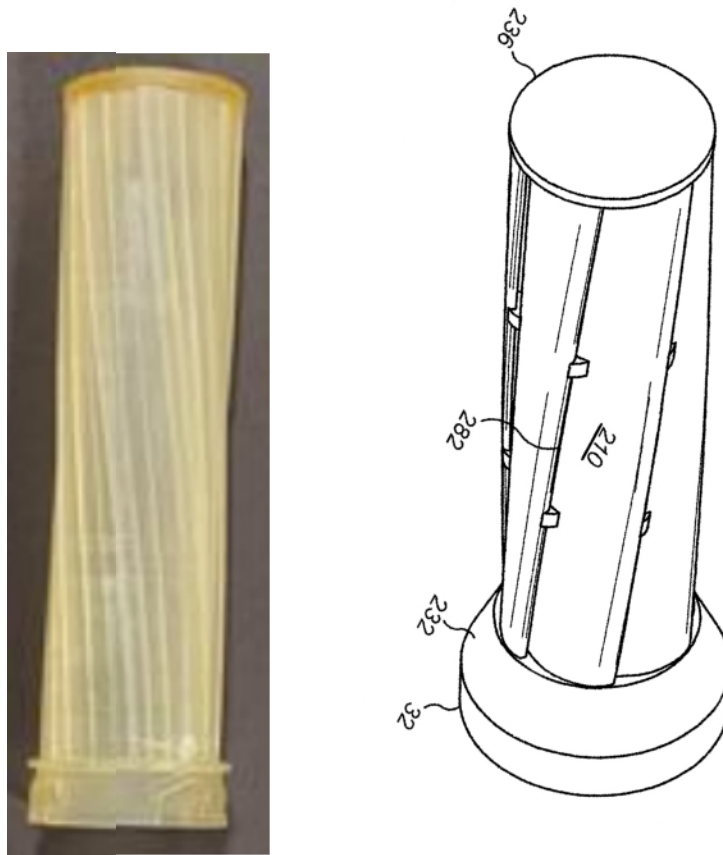


- 1 Brush
- 2 Bristle base
- 9 Hair dryer
- 20 Bristle



Expert's "model"

FIG. 7b of '979 Patent



EX1003, ¶107; EX1001, FIG. 7b.

The changes in this hindsight-driven “model” are not only not suggested by either reference, but as explained in detail below are contrary to the teachings of Saito and Lindsey, modify their principles of operation, result in the loss of important features and benefits, and possibly even render the “model” device unfit for its intended purpose. As a result, Dr. Nosenchuk’s “model” is a model of the ’979 patent’s Fig. 7b embodiment than a Saito/Lindsey combination, and the only thing Dr. Nosenchuk’s “model” proves is that the ’979 patent claims are enabled because he was able to use the ’979 patent as a roadmap to reduce to practice the

invention described therein. Dr. Nosenchuck's "model" has no bearing on the issue of obviousness.

Petitioners and their expert compounded the errors in their obviousness challenges by ignoring a mountain of evidence showing objective indicia of non-obviousness, a.k.a. secondary considerations. The Petition erroneously claims that "[t]here are no secondary considerations of non-obviousness tied to the Challenged Claims." Petition, p. 89 (emphasis added). But SharkNinja knows this is false. Publicly-available evidence establishes, among other things, the commercial success of the Challenged Claims, as well as industry praise for the invention. These facts have been admitted by SharkNinja's Senior Vice President, Anthony Marra:

Q: Do you agree that the Dyson Airwrap [embodiment of the '979 patent invention] was a commercial success?

A: I do believe the Airwrap has been successful.

Q: Did the Dyson Airwrap, to your knowledge, receive any praise from others?

A: Yes, it has received praise.

EX2011, 92:20-93:1; 107:14-23. In addition to this publicly available information, Dyson produced plenty of secondary considerations evidence to SharkNinja in the course of ongoing global litigation.

Significantly, Petitioners have hidden this evidence not only from the Board, but from their own expert. *See, e.g.*, EX1003, ¶253 ("I am not aware of any

secondary considerations of non-obviousness raised by Dyson with respect to the Challenged Claims of the '979 patent.”). Worse still, Dr. Nosenchuk either decided or was instructed by SharkNinja to ignore evidence of commercial success of which he was aware. EX1003, ¶253 (“Although it appears to me that the Dyson AirWrap has had some degree of commercial success, I have not quantified that success, *nor have I performed an element-by-element analysis of the claims of the '979 patent against the Dyson AirWrap product such that I could conclude that any commercial success is due to the practicing of the Challenged Claims by the Dyson AirWrap.*” (emphasis added)).

The obviousness challenges in the Petition are fatally flawed, both because (1) they involve hindsight-driven modifications to the teachings of the Saito and Lindsey references that are contrary to the teachings of those references and change their principles of operation, and (2) completely omit any consideration of substantial objective evidence of non-obviousness. Thus, as set forth in more detail below, PO respectfully requests that the Board deny institution because Petitioners failed to meet their burden of establishing a reasonable likelihood of success that they will prevail in showing that any Challenged Claim is unpatentable.

II. OVERVIEW OF THE '979 PATENT

The '979 patent relates generally to “an attachment for a hand-held appliance, in particular a hair care appliance such as a hot styling brush.” EX1001,

1:13-15. In one embodiment, the '979 patent discloses “a hot styling brush 10 with a handle 20 and a detachable head or attachment 30.” *Id.*, 4:45-48.

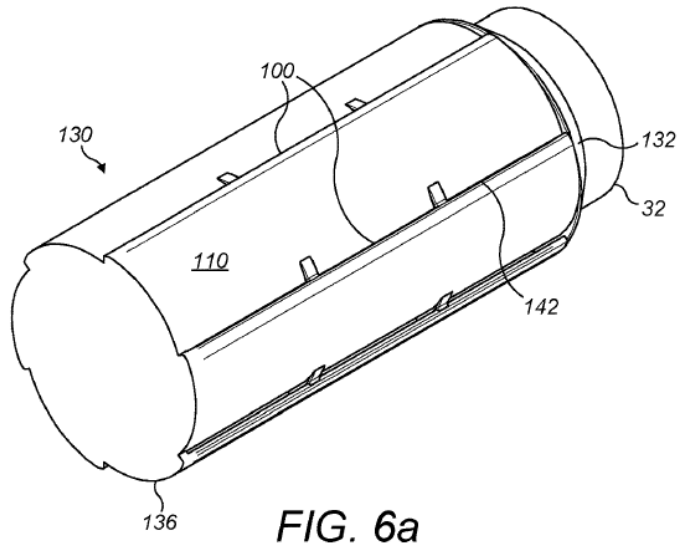


EX1001, FIG. 1a.

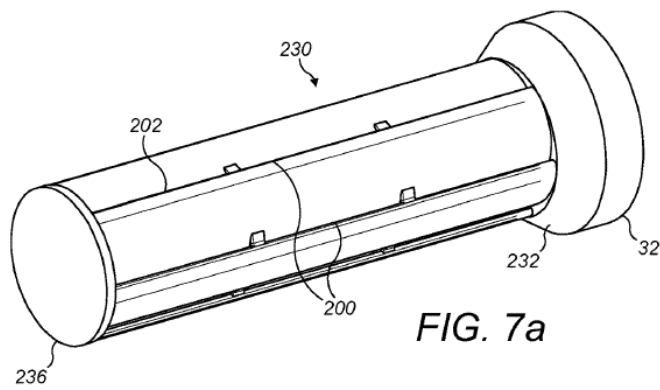
Example attachments for the brush 10 include those shown in FIGS. 3a, 6a, 7a, 7b, and 8a (reproduced below):



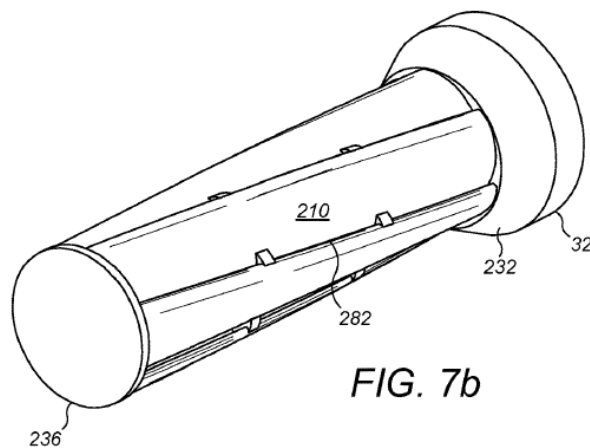
EX1001, FIG. 3a.



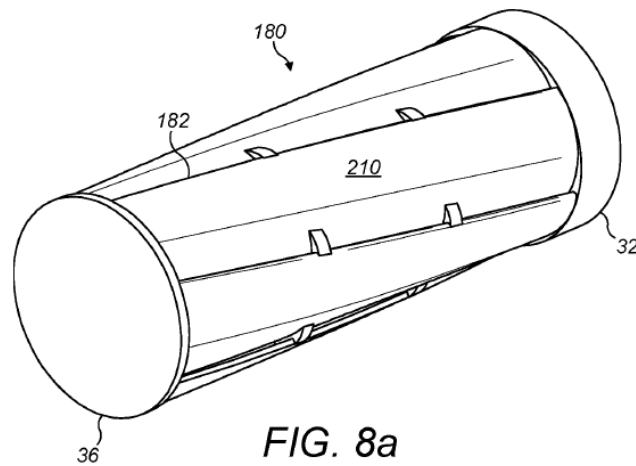
EX1001, FIG. 6a.



EX1001, FIG. 7a.

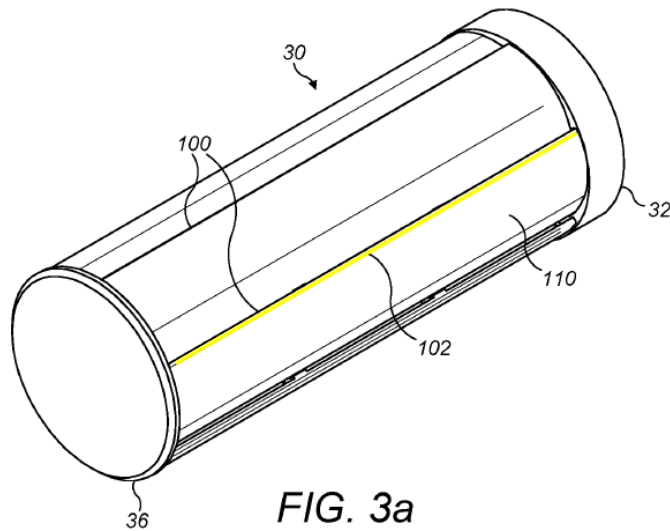


EX1001, FIG. 7b.



EX1001, FIG. 8a.

The '979 patent describes these attachments as being “essentially cylindrical” or “generally cylindrical.” *Id.*, 6:58-60, 11:8-10. The '979 patent explains that the attachment comprises several long slots, an example of which is shown in FIG. 3a (reproduced below, slot 102 highlighted in yellow). Although not shown in FIG. 3a, spacers are” provided to maintain each slot 102 size.” *Id.*, 7:24-29.

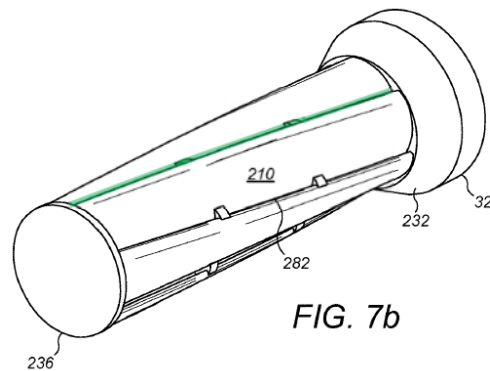
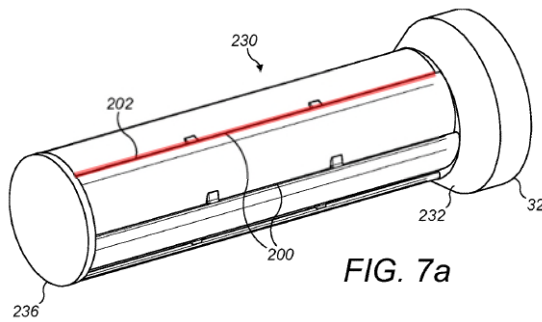


EX1001, FIG. 3a (highlighting added).

The '979 patent also discloses that slots can run along the length of the attachment (also referred to as a “head”), either straight down the sides as shown in red in FIG. 7a or twisted around in a helical fashion as shown in green in FIG. 7b.

EX1001, 7:62-64 (“slots 202 for this head extend longitudinally straight from the first end 32 to the second end 236”), 7:65-67 (“head 280 has slots 282 which curve around the head 280 forming a spiral or helical pattern around the head 230”);

FIGS. 7a, 7b:



EX1001, FIGS. 7a, 7b (highlighting added).

According to the '979 patent, one of the problems with the prior art was that the bristles that are used in conventional hot styling brushes to hold hair while a user twists his/her wrist to cause the hair held to wrap around the conventional hot styling brush could entangle hair. EX1001, 7:20-23. This is known to cause many problems. For example, there is user discomfort in having to untangle the bristles from his/her hair and the resulting mechanical damage to the hair. Mechanical damage is undesirable to the user in terms of hair condition and the look of the end results of using hot styling brushes. EX2001, ¶31.

The '979 patent provides a solution to this problem by eliminating the bristles and using only air to dry and style hair. *Id.*

This solution employs a known phenomenon referred to as the Coanda effect to cause hair to automatically wrap around the surface and hold it there to style the hair into curls without bristles, rotational motors, clips, or action by the user's wrist. EX1001, 7:16-29. The Coanda effect is the action in fluid mechanics

whereby a flow along a solid surface tends to follow the surface rather than separating. The phenomenon causes air, when propelled out of a nozzle/slot, to naturally follow an adjacent surface, pulling in the surrounding air along with it.

The Coanda Effect is named after Henri Coanda, one of the first persons to describe the phenomenon. Coanda himself disclosed and then patented implementations of the Coanda effect. Mr. Coanda's first patent relating to the Coanda effect issued as U.S. Patent No. 2,052,869 (EX1010). Coanda also patented a "Lifting Apparatus" implementing the Coanda effect, U.S. Patent No. 3,261,162 (EX1011). These two patents, the '162 and '869 patents, as well as other Coanda effect literature, are invoked by the specification's use of the term "Coanda effect." The Coanda Effect is discussed in the technical literature, for example in G.I. Fekete, Coanda Flow of a Two-Dimensional Wall Jet on the Outside of a Circular Cylinder, McGill University (1963) (EX1025), or J. Dunham, A theory of circulation control by slot-blowing, applied to a circular cylinder, 33 J. Fluid Mech. 495 (1968) (EX1021). But until the '979 patent at issue here, no known reference discusses any application of the Coanda effect to automatically wrap hair for styling or curling.

The '979 patent specification discloses that, as shown in FIG. 5b below, the slots 102/202/282 which extend along the length of the attachment are formed

from an overlap 120 formed between adjacent plates 110a, 110b, which have curved outer and inner surfaces 112, 114. EX1001, 7:1-9, FIG. 5b.

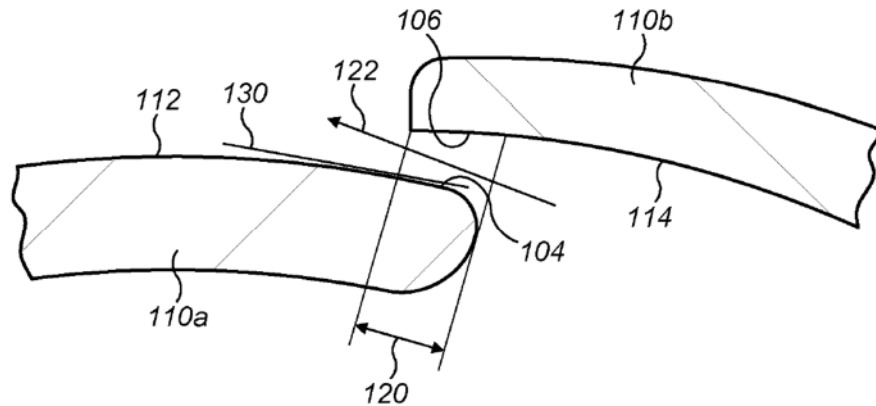


FIG. 5b

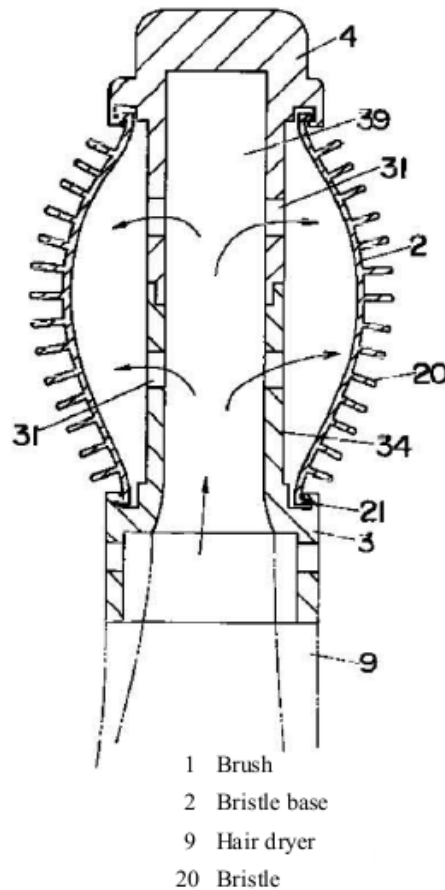
The fluid 122 flowing out of the slot 102 is attracted to the curved surface of the plate 110 by the Coanda effect, resulting in a *circumferential* (not merely tangential) flow of fluid around the attachment 30. EX1001, 7:9-13. This in turn causes hair that is presented to the head 30 to automatically wrap around the surface of the attachment 30 so it is styled into curls. EX1001, 7:13-19. “As air is blown down the length of the hair, wet hair is dried more quickly than conventionally and as the wrapping process occurs without the use of bristles, the hair can slide off the head 30 once it is dry or styled so there is no tangling.” *Id.*, 7:20-23. There is also the implicit benefit that the user does not unfurl the curl during the process of detangling, resulting in better style retention. EX2001, ¶35.

III. OVERVIEW OF ALLEGED PRIOR ART

A. Saito (EX1004)

Saito discloses “a hair dryer with an attached brush in which a brush 1 that comprises a bristle base 2 from a surface of which numerous bristles 20 protrude is connected to a blowing port of a hair dryer body 9 and air or steam is blown out from the hair dryer body 9 via discharge ports 24 formed in the bristle base 2 of the brush 1.” EX1004, Abstract.¹

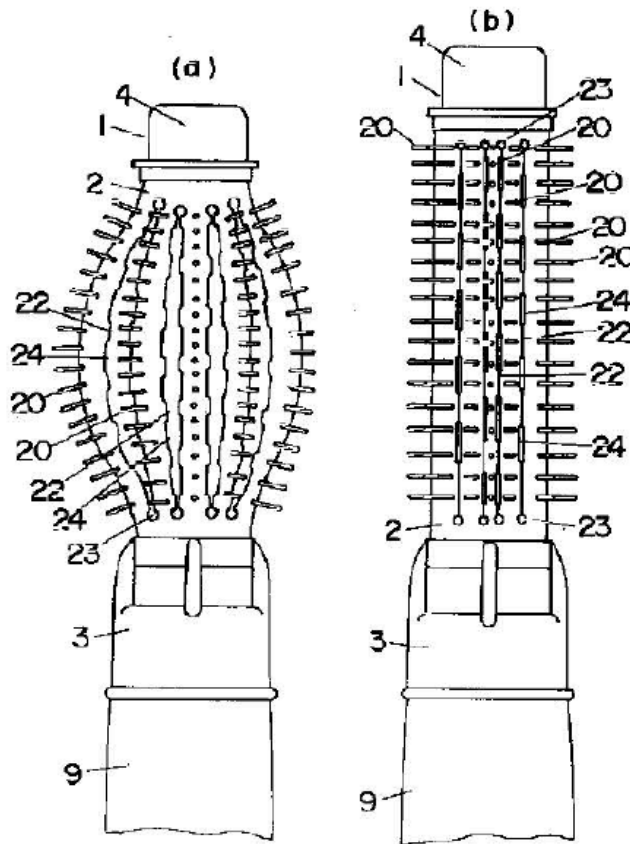
¹ All citations to Saito refer to the English translation that begins on page 10 of EX1004.



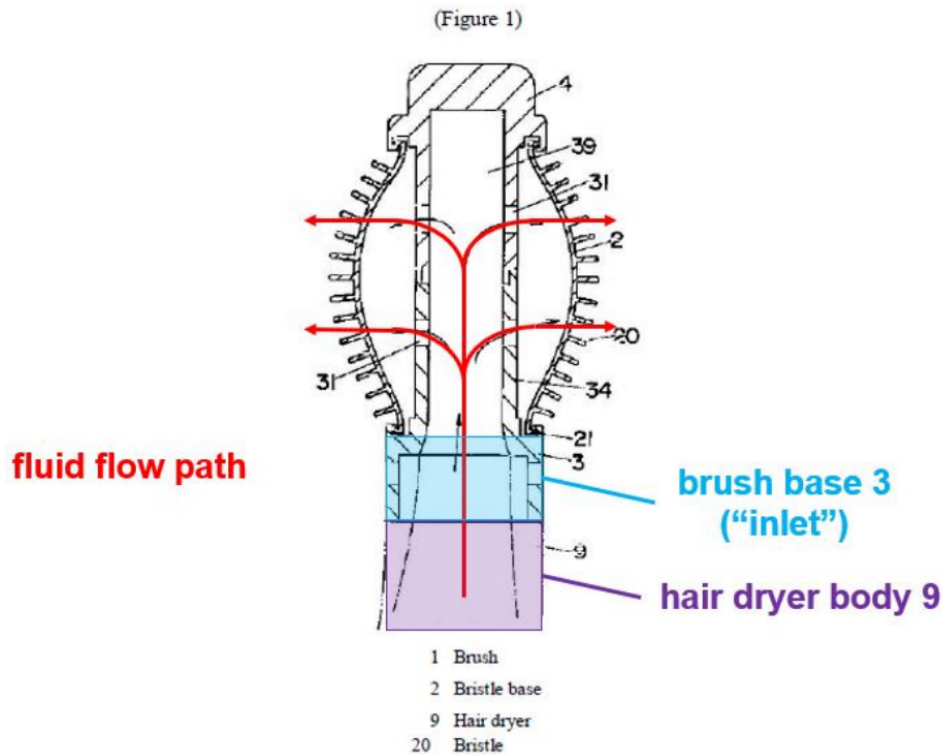
EX1004, p. 10.

Saito is relied upon by the Petitioners for the bristle base 2's purported ability to switch from a compressed shape (shown in FIG. 5(a)) to a "simple cylindrical shape" (shown in FIG. 5(b)). EX1004, ¶¶17-18 ("By changing the distance between the brush bases 3, 4 as described above to cause the middle of the bristle base 2 to bulge outward, the cross-section of this brush 1 in an axial direction can be made to form a circular arc, not a simple cylindrical shape"):

(Figure 5)



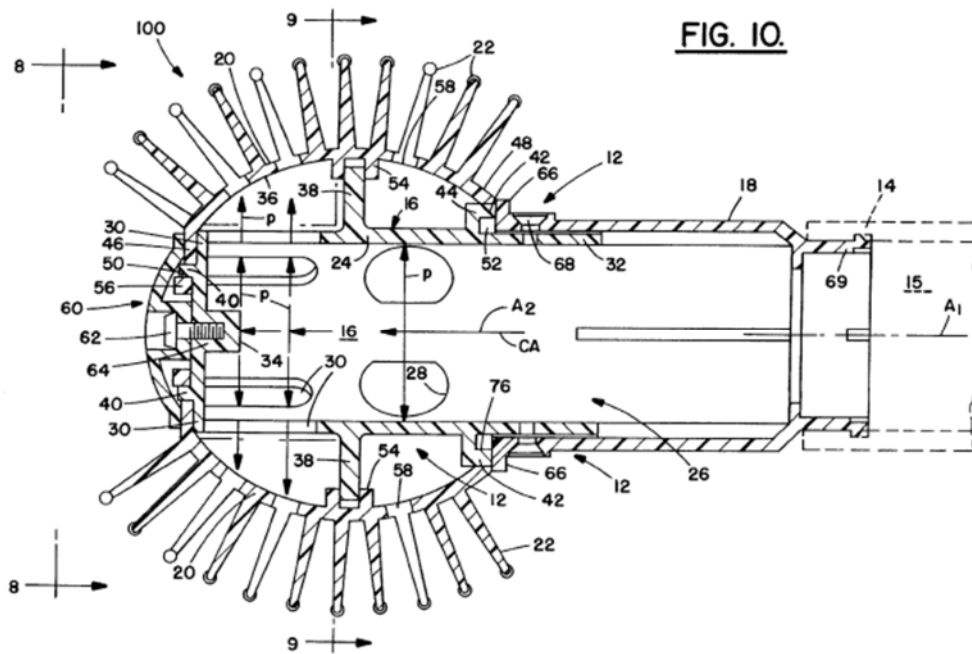
Every illustrated embodiment of Saito includes bristles and a bristle base, including the embodiment shown in FIGS. 5(a)-5(b) relied upon by the Petitioners. EX1004, FIGS. 1-15. Petitioners and their expert admit that Saito teaches the wrong air flow to read on the Challenged Claims. *See, e.g.*, Petition, p. 26 (“Saito discloses a cylindrical attachment for a hair dryer that has slot-shaped outlets which discharge hot air or steam in an outwardly radial direction from the center of the attachment.”); EX1003, ¶90 (“Saito’s flow path is radial, outwardly from the attachment.”). *See also*, Petition, 36:



No circumferential flow is described or claimed in Saito. Moreover, Saito makes no mention of the Coanda effect or whether its device has flow paths that encourage circumferential flow and/or the automatic wrapping of hair around the hair dryer attachment. EX2001, ¶39.

B. Lindsey (EX1005)

Lindsey discloses a hair styler 10 comprising a “hair styler 10 [coupled] to an outlet 14 of a hair blower 15.” EX1005, 5:10-17; FIG. 10.

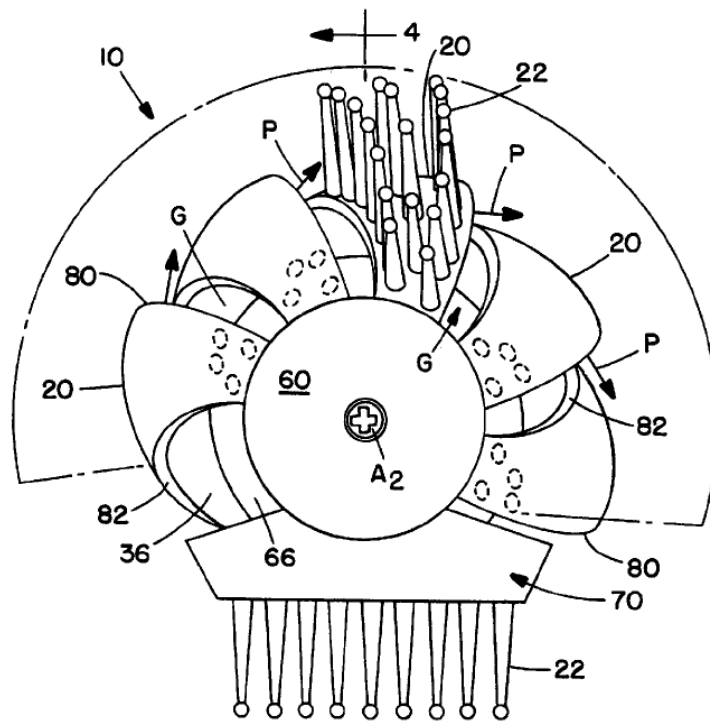


EX1005, FIG. 4.

According to Lindsey, a core 16 is connected to the outlet 14 by a sleeve 18.

EX1005, 5:18-20. “Hair styler 10 is also comprised of deflector means associated with, preferably part of, the coupler means, for deflecting the air that flows through the coupler means, particularly through core 16, into plural flow paths, generally designated P, exterior of hair styler 10.” *Id.*, 5:20-24; FIG. 1:

FIG. I.



The below diagrams taken from the Petition (p. 44) illustrate tangential and other flow paths disclosed in Lindsey:

FIG. 9.

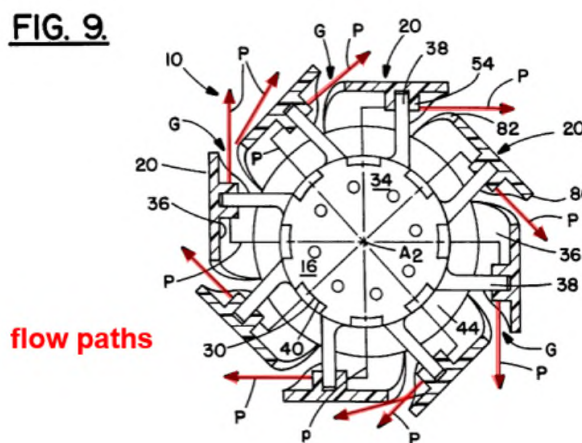
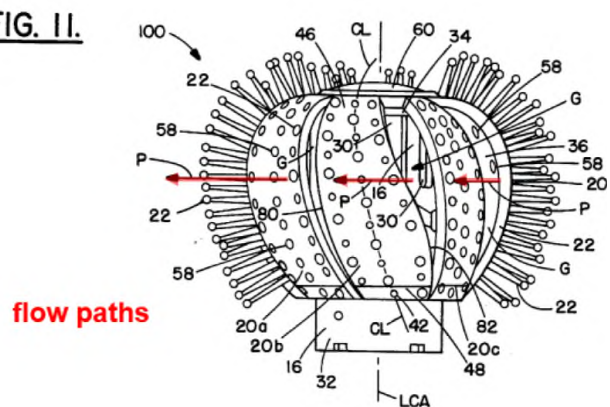


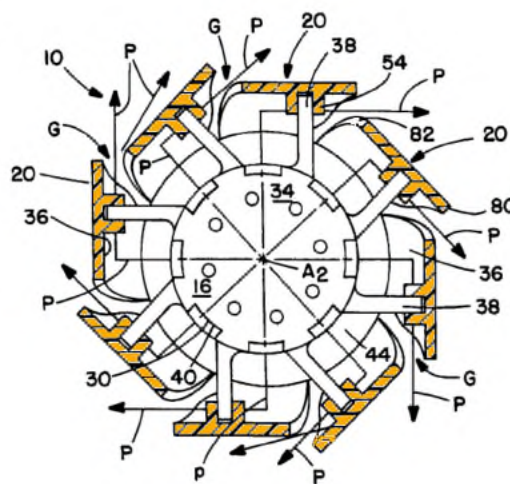
FIG. II.



As discussed in the Petition, “Figure 9 illustrates ‘**plural flow paths P**’ which are approximately transverse or perpendicular to central axis CA of core internal chamber 26, [and] manifest in different angular directions entirely about

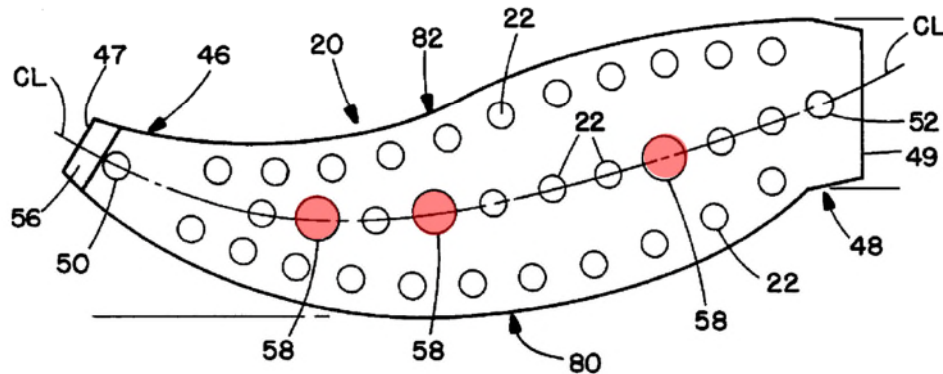
central axis CA.” Petition, p. 21. Lindsey’s vanes 20 are responsible for these flow paths. Petition, 21-22. Lindsey discloses that the vanes 20 include bristles, referred to as prongs 22. “Vanes 20 are disposed generally along the length of core 16 and have a plurality of elongated members, such as prongs 22, formed on and/or extending outwardly therefrom, for manipulating, e.g. styling hair.” EX1005, 5:34-37. “Flow paths P are deflected from one vane over an adjacent vane, and preferably through prongs 22 of the adjacent vane.” *Id.*, 5:40-41. Like Saito, every illustrated embodiment within Lindsey requires the vanes to have bristles/prongs 22 for manipulating hair (the bristles/prongs 22 are not shown in some figures “for simplification”). EX1005, 5:37-41. As shown below, Lindsey’s vanes 20 are flat in the direction of flow paths P. Neither Saito or Lindsey provide fixed flow exits or curved surfaces that enable circumferential flow.

FIG. 9.



EX1005, FIG. 9. One of Lindsey’s vanes 20 is shown in FIG. 5 below.

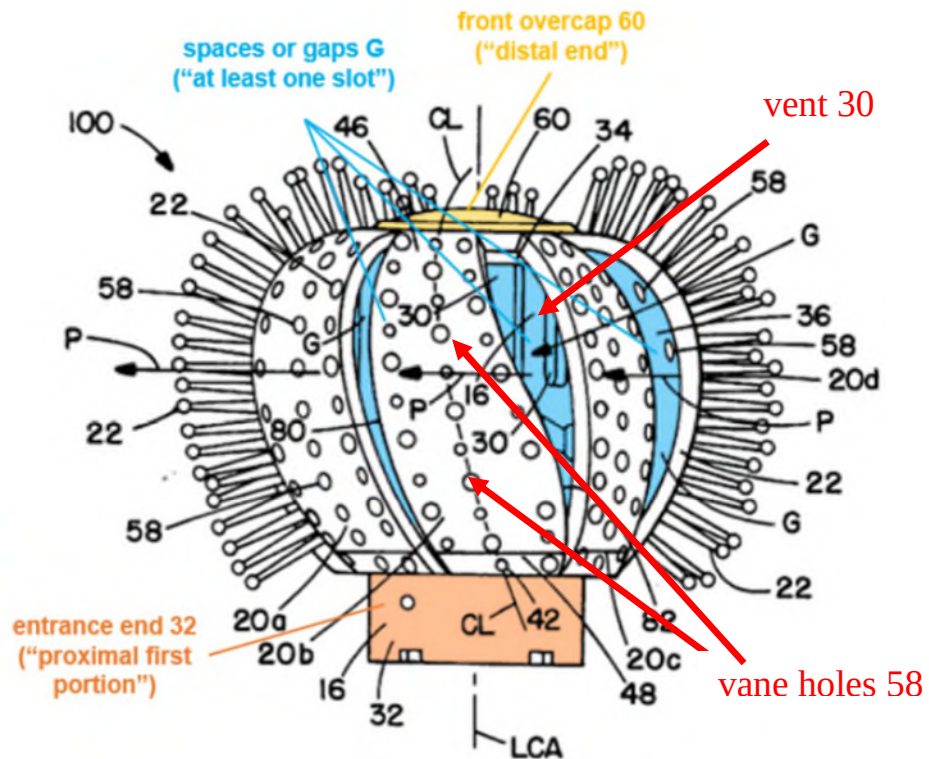
FIG. 5.



The vane 20 has a curved centerline CL and curved leading and trailing side edges 80, 82 that generally follow the curved centerline CL. EX1005, 5:57-67.

The vane 20 has holes 58 (highlighted in red) formed therein among the prongs 22 for the discharge of air. *Id.*, 6:54-56. As seen in FIG. 5, a width of the vane 20 in the direction perpendicular to the centerline CL varies at different point along the centerline CL. As a result, gaps or slots G formed between adjacent vanes 20 have varying widths and radial extents as shown in blue in FIG. 11 below (taken from Petition at 38). EX1005, 8:47-54.

FIG. 11.



Lindsey discloses that the gaps G and the holes 58 provide a radial airflow in addition to the tangential air flow discussed above. “Some of the air which exits vents 28, 30 [in the core 16] is discharged from the hair styler 100 directly through gaps G, and a lesser amount of the exiting air is discharged through the vane holes 58.” As seen in Fig. 11 above, a substantial portion of the vent 30 is directly aligned with the gap G shown in blue, which facilitates this radial air flow.

EX2001, ¶46. All of Lindsey’s vanes support radial airflow and do not create, but rather in fact prevent circumferential airflow. *Id.*

Lindsey discloses that vanes 20 provide a large hot air exhaust area that is “approximately 40% wider than the open area provided” by a conventional ball-

type brush, and that the variable width gaps along with other features of the vanes
20 result in flow paths of having “continually varying and spiraling radii” such that
“discharged hot air is spun out from the central portion of the vanes in a turbulent
manner.” EX1005, 42-53. Turbulent airflow is uncontrolled and therefore contrary
to the needs of circumferential flow. EX2001, ¶47.

Lindsey further explains the importance of these wider gaps in discharging
air quickly and efficiently from the hair styler 10. EX1005, 9:57-10:4:

The turbinate arrangement of the vanes, their features and
disposition, and the rounded or ball-shape of the hair styler
which cooperate to evacuate air quickly and efficiently from the
interior of the hair styler are significant because the operating
temperatures of hot air hair blowers and hair styler attachments
are close to the temperature limits of many non-metal materials
which might be used for the hair styler. If the air is not rapidly
and efficiently exhausted, the excessive build up of pressurized
heated air in the internal chamber could rapidly overheat and
tend to melt or soften such materials of the hair styler. Also, for
hair stylers made of non-metal or metal materials, the excessive
build up of air pressure in the internal chamber would resist
incoming air and the fan in the hair blower, and could rapidly
overheat the hair blower.

Lindsey, like Saito, makes no mention of the Coanda effect or whether its device has flow paths that encourage circumferential flow and/or the automatic wrapping of hair around the hair dryer attachment. EX2001, ¶49.

C. Schepisi (EX1006)

Schepisi is relied upon by the Petitioners as allegedly teaching a blow dryer having a “‘fully deflecting mode’ where air flow is directed to the ‘aligned² holes 6 and 7 of the inner and outer cylinders 4, 5,’ which results in ‘air be[ing] discharged through the surface of the barrel 3’” and that “the barrel of the blow dryer ‘can include a mesh-type screen’ that ‘can be positioned cylindrically within the barrel.’” Petition, pp. 68-69.

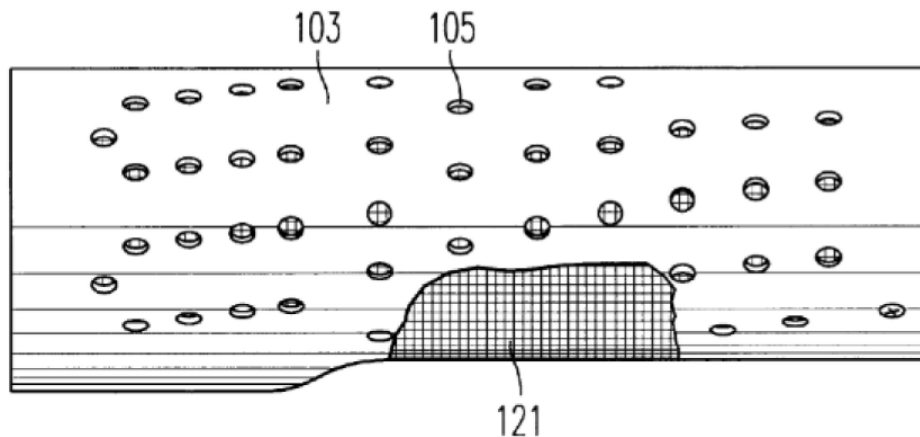


FIG. 23

² Should be “aligned.” See EX1006, 5:40–45.

EX1006, FIG. 23. Schepisi is not relied upon to show any teachings of independent claims 1 or 17.

D. Nicolas (EX1007)

Nicolas is relied upon by the Petitioners as allegedly teaching a “fan assembly” where “spacers are preferably arranged to maintain a set distance between the facing surfaces of the nozzle,” “the spacers are mounted on, preferably integral with, one of the facing surfaces of the nozzle,” and are “arranged to contact the other one of the facing surfaces.” Petition, pp. 73-74.

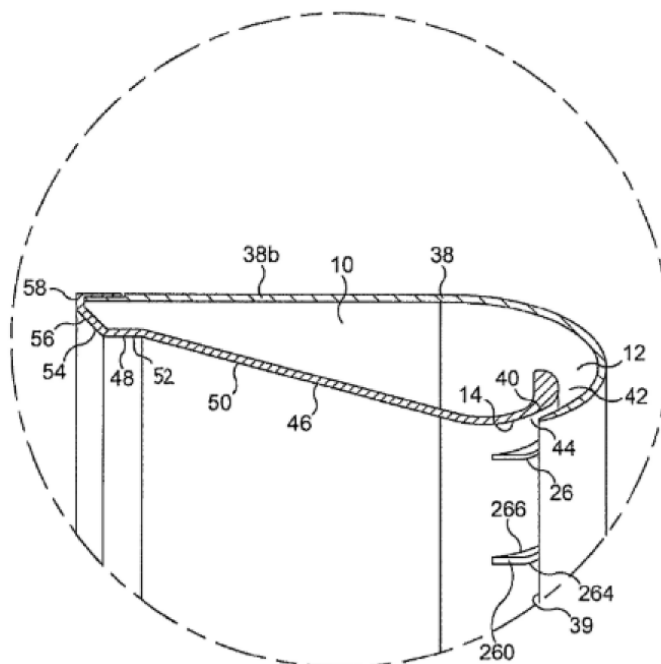
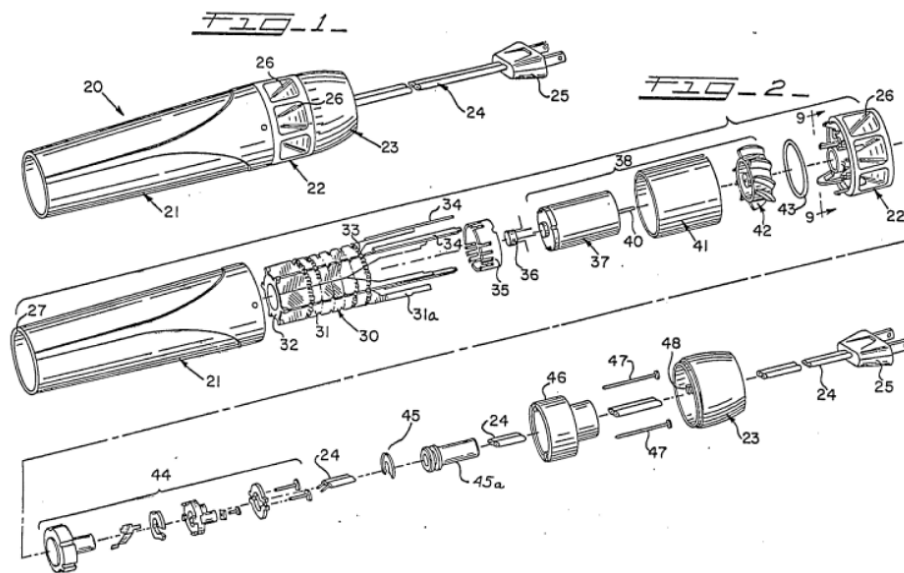


FIG. 4

EX1007, FIG. 4. Nicolas is not relied upon to show any teachings of independent claims 1 or 17.

E. Shoemaker (EX1009)

Shoemaker is relied upon by the Petitioners as teaching a “hand-held hair dryer or styler [that] is of tubular shape and is not provided with the normal handle grip” and that “styling attachments” may be “releasably connected to the air outlet housing 27 to adapt the appliance for various combing and brushing operations in connection with the styling and drying of a user’s hair.” Petition, pp. 79-80.



EX1009, FIG. 1.

Other than disclosing a “hand-held hair styling appliance,” Petition, pp. 81, 83-84, Shoemaker is not relied upon to show any teachings of independent claims 1 or 17.

IV. PERSON OF ORDINARY SKILL IN THE ART

The '979 patent has an effective filing date of March 20, 2014. EX1001, (30). Petitioners’ level of ordinary skill in the art is a Bachelor’s degree or

comparable technical degree in Industrial Design or Mechanical Engineering or equivalent work experience, and at least one year's worth of experience in research, design and/or development related to appliances for moving air such as hair dryers (or other comparable industrial design). Additional education could substitute for experience, and vice versa. Petition, 17-18. PO adopts this level for purposes of this IPR because any POSITA level should not affect the analysis herein. Moreover, SharkNinja stated in related litigation in France involving the French family member of the '979 patent that the person "has a good knowledge of general mechanics in relation to the technical field in question," but no specific preexisting "knowledge of fluid dynamics nor knowledge of the Coanda effect." EX2012, p. 22; EX2001, ¶¶24-26.

V. CLAIM CONSTRUCTION

PO agrees with Petitioners, for the purposes of this preliminary response, that that the claim terms can be afforded their plain and ordinary meaning. *See Phillips v. AWH Corp.*, 415 F.3d 13030 (Fed Cir. 2005) (*en banc*). PO reserves the right to fully proffer its own constructions for any claim terms in its Patent Owner's Response under 37 C.F.R. § 42.120 should an *inter partes* review be instituted.

**VI. PETITIONERS HAVE NOT ESTABLISHED A REASONABLE
LIKELIHOOD THAT ANY CHALLENGED CLAIM IS
UNPATENTABLE**

**A. The Saito-Lindsey Combination Does Not Teach or Suggest Claim
Limitations [1f] and [17f]**

Limitation [1f] requires that “[the outlet] is configured to direct fluid flow emitted from the outlet tangentially along and around the external surface of the substantially contiguous wall to form a circumferential fluid flow around the cylindrical second portion of the attachment that encourages hair to automatically wrap around the cylindrical second portion.” EX1001, 11:22-29, Petition, p. 42. Limitation [17f] recites similar language. EX1001, 12:20-27; Petition, p. 97. For the reasons discussed below, these limitations are not disclosed in either Saito or Lindsey, and are not obvious over the combination of these references. EX2001, ¶56.

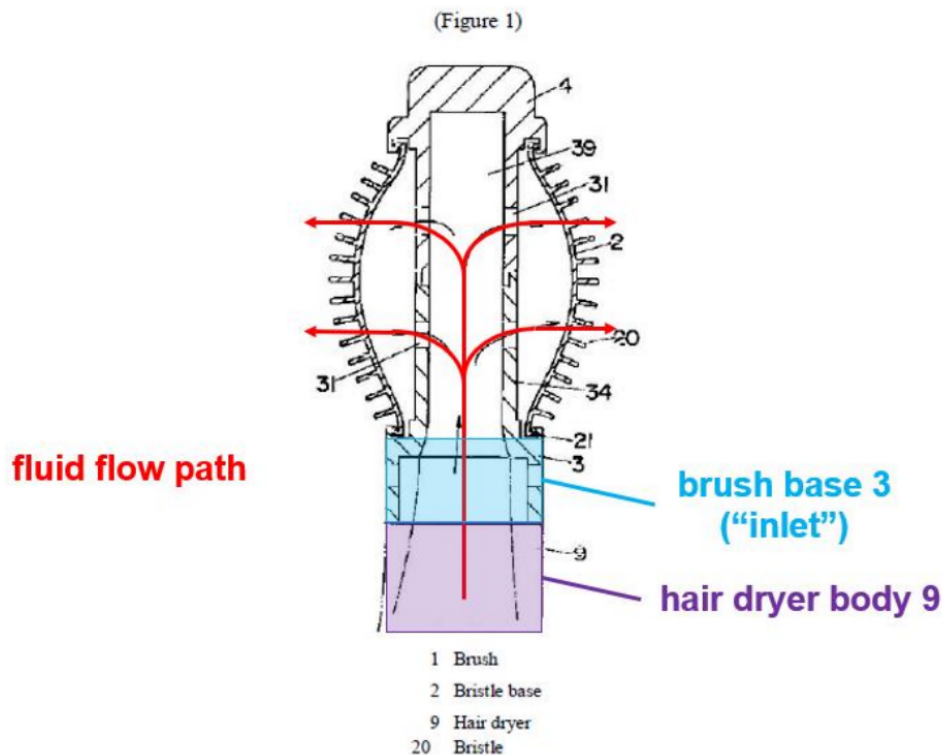
**1. The Combination Of Saito/Lindsey Does Not Render
Limitations [1f] and [17f] Obvious**

Petitioners failed to show that limitations [1f] and [17f] are rendered obvious by the combined teachings of Saito and Lindsey, as understood by a POSITA. EX2001, ¶57. As such, Petitioners have failed to demonstrate that these limitations, and thus every Challenged Claim, are obvious. Trial should not be instituted in view of this failure.

a. Neither Saito Nor Lindsey Discloses the “Circumferential Fluid Flow” of Limitations [1f] and [17f]

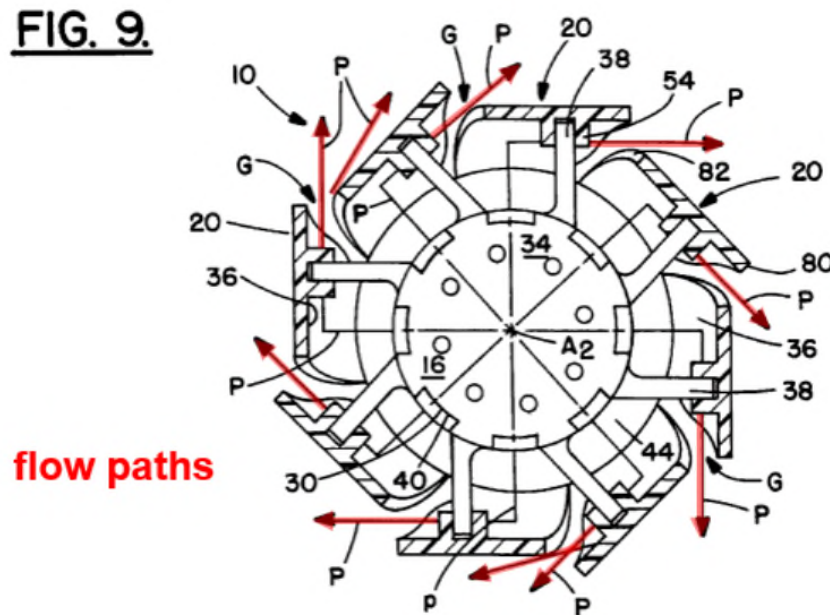
Limitations [1f] and [17f] require the formation of “a circumferential fluid flow” around the attachment. EX1001, 11:27-28 and 12:25-26. Neither Saito nor Lindsey disclose a circumferential fluid flow. EX2001, ¶58.

The Petition and Dr. Nosenchuk admit that Saito discloses a radial outward fluid flow rather than a circumferential fluid flow. Petition at 43 (referring to “Saito’s radial airflow”); EX1003, ¶90 (“Saito’s flow path is radial, outwardly from the attachment.”). Consistent with these admissions, the Petition shows Saito’s fluid flow as radially outward:



Petition at 36. Thus, Petitioners admit that Saito does not disclose the “circumferential fluid flow” of limitations [1f] and [17f]. EX2001, ¶¶59-60.

Lindsey also fails to disclose the required “circumferential fluid flow.” Lindsey never uses the word “circumferential” or any variant thereof to describe a fluid flow, and never mentions the Coanda effect. Lindsey does describe some tangential (*not circumferential*) flow paths P highlighted in red as shown in FIG. 9:



However, these *tangential* flow paths P are shown as flowing away from the central longitudinal axis A₂ in FIG. 9 above and are not *circumferential*.³

Moreover, the cross-sections of Lindsey’s vanes 20 are flat rather than curved, and

³ PO submits that this image is an attempt by Lindsey to show a 3-dimensional representation of the cross section of the device and its airflow. There is no circumferential airflow nor is there any flow attracted to the surface of the vanes. EX2001, n. 3.

thus would not form, and would not have been expected by a POSITA to form, the required circumferential fluid flow that would result from a curved exterior surface. EX2001, ¶62. This is particularly true when one considers that Lindsey further discloses radial flow paths, which would disrupt any circumferential flow that might result from only the tangential flow paths focused on by Petitioners and Dr. Nosenchuk. *Id.* Indeed, neither the Petition nor Dr. Nosenchuk explain how a tangential fluid flow from the flat surfaces of Lindsey's vanes 20 could result in the "circumferential fluid flow" required by limitations [1f] and [17f]. The flat surfaces of Lindsey's vanes 20 is consistent with the absence of any discussion in Lindsey of a circumferential fluid flow or the Coanda effect. *Id.*

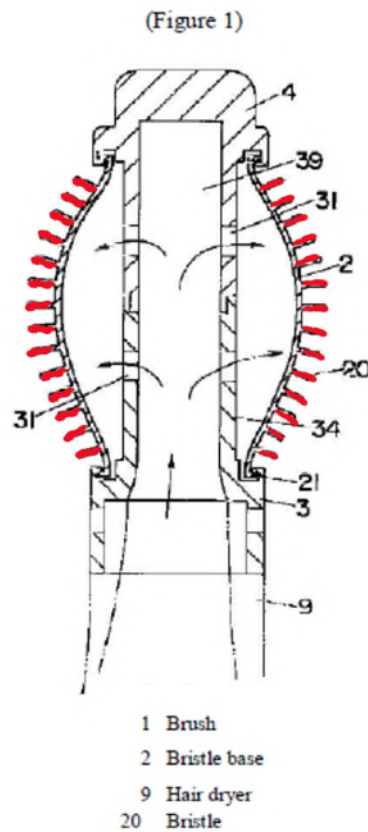
Given that neither Saito nor Lindsey disclose a "circumferential fluid flow," it follows that their combination would not have this feature. EX2001, ¶63. As will be discussed in further detail below, the Petition and Dr. Nosenchuk have effectively conceded that the combination of Saito and Lindsey would not result in a "circumferential fluid flow" because their "model" of the combination of Saito and Lindsey required *multiple* modifications that were neither taught nor suggested in either Saito or Lindsey – only some of which were acknowledged – in order to realize a circumferential fluid flow. The multiple modifications alluded to are clearly the result of hindsight reconstruction in view of the '979 patent. *Id.* It is well settled that "[d]etermination of obviousness cannot be based on the hindsight

combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546, 48 USPQ2d 1321, 1329 (Fed. Cir. 1998).

b. Neither Saito Nor Lindsey Disclose Automatic Hair Wrapping As Required by Limitations [1f] and [17f]

Even if the proposed combination of Saito and Lindsey would result in a circumferential fluid flow (it would not for the reasons discussed above), they would not automatically wrap hair as required by limitations [1f] and [17f] due to the presence of bristles. EX2001, ¶64.

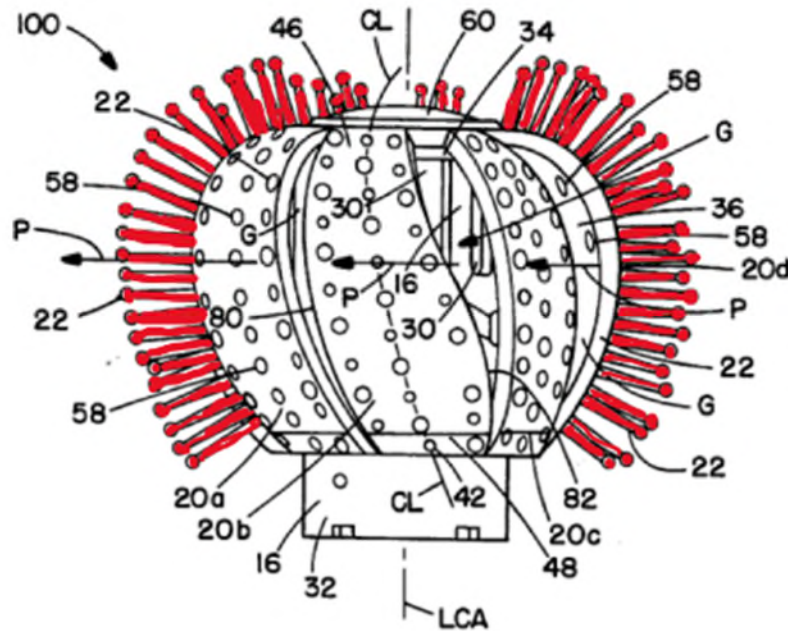
As noted above, every illustrated embodiment of Saito includes bristles and a bristle base, including the embodiment shown in FIG. 1 (reproduced below with bristles annotated in red) relied upon by the Petitioners in their invalidity analysis of [1f] and [17f]. EX2001, ¶65.



EX1004, FIG. 1.

Similarly, Lindsey includes bristles in the form of prongs 22. “Vanes 20 are disposed generally along the length of core 16 and have a plurality of elongated members, such as prongs 22, formed on and/or extending outwardly therefrom, for manipulating, e.g. styling hair.” EX1005, 5:34-37. “Flow paths P are deflected from one vane over an adjacent vane, and preferably through prongs 22 of the adjacent vane.” *Id.*, 5:40-41. Like Saito, every illustrated embodiment within Lindsey requires the vanes to have prongs (although some of Lindsey’s figures do

not show the prongs 22 “for simplification”). EX1005, 5:37-41. EX2001, ¶166. One example is shown in FIG. 11 below with the bristles/prongs 22 highlighted in red:



Because all embodiments of both Saito and Lindsey include bristles, their combination would also include bristles. EX2001, ¶167. However, a POSITA would have understood that the presence of bristles would prevent the circumferential airflow that enables the automatic wrapping of hair. *Id.* In order for hair to wrap automatically as in limitations [1f] and [17f], the hair must become entrained in the circumferential fluid flow, but the bristles would prevent this entrainment. *Id.* And, if a user were to place his/her hair between the bristles so that it does come into contact with a circumferential fluid flow (assuming *arguendo* that such a circumferential fluid flow were present in the combination of

Saito/Lindsey combination), the bristles would function to hold that hair in place, thereby preventing the hair from automatically wrapping around the attachment, as well as interrupting the circumferential fluid flow. *Id.*

For the reasons discussed above, limitations [1f] and [17f] are not found in either Saito or Lindsey. Accordingly, even if a POSITA were to combine Saito and Lindsey, limitations [1f] and [17f] would not be present in that combination and that a POSITA would have no reasonable expectation of successfully realizing limitations [1f] and [17f] by combining these references. EX2001, ¶68.

2. PO's Experiment Confirms That Lindsey's Vanes Do Not Encourage Hair To Automatically Wrap Around The Cylindrical Portion Of The Attachment

PO's expert Mr. Peter Bressler, performed two experiments with the commercial embodiment of Lindsey – one with its prongs and one without. EX2001, ¶69.



EX2030; EX2031.

As can be seen from Mr. Bressler's video marked as EX2032, Mr. Bressler personally tested and observed how the commercial embodiment of Lindsey fails to perform or encourage any type of hair wrapping. EX2001, ¶70. As shown in Mr. Bressler's video marked as EX2033, he obtained the exact same results when he used the modified version of Lindsey, which had its bristles removed to focus only on the effect of the Lindsey's vanes. *Id.* A side-by-side comparison of the two devices in operation is shown below:



EX2001, ¶70 (citing EX2032 at 0:25; EX2033 at 0:25).

Mr. Bressler tested different orientations of the modified bristleless device (with the tip of the brush facing towards the hair versus the side of the brush facing towards the hair) with different sections of hair (towards the top, center, and end of the hair). EX2001, ¶71. In all instances, the Lindsey commercial embodiment was unable to perform or encourage any type of hair wrapping. *Id.* (citing EX2033). Instead, he personally observed how the modified, bristleless Lindsey commercial embodiment's outlet actually tends to blow hair away from the device, as might be expected from a tangential flow. *Id.*

Mr. Bressler also tested the different orientations on the original, unmodified Lindsey commercial embodiment and made the same observations. EX2001, ¶72 (citing EX2032).

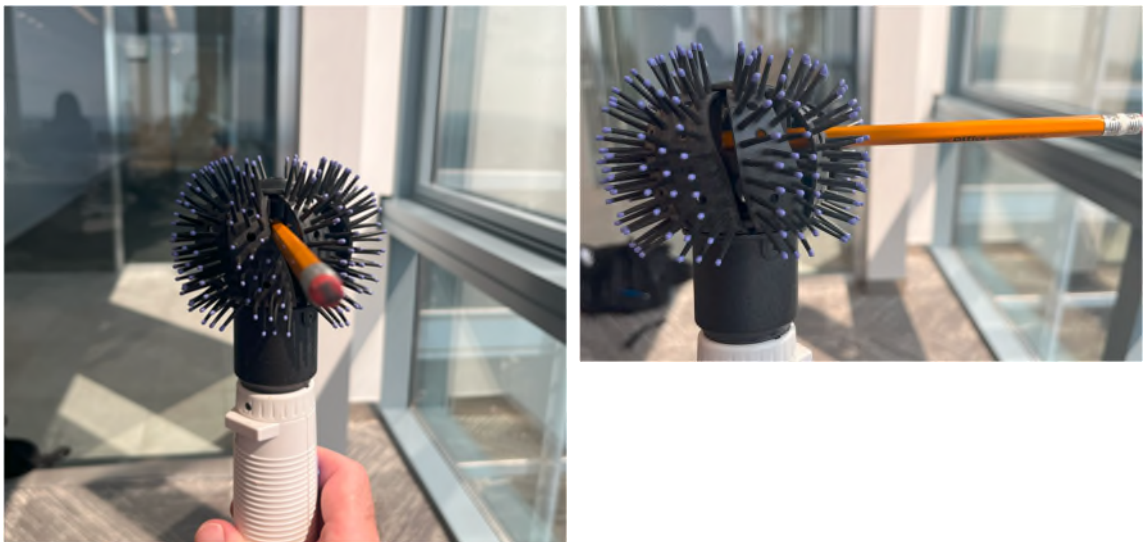
Both experiments demonstrated that Lindsey does not have an outlet “configured to direct fluid flow emitted from the outlet tangentially along and around the external surface of the substantially contiguous wall to form a circumferential fluid flow around the cylindrical second portion of the attachment that encourages hair to automatically wrap around the cylindrical second portion,” as required by the Challenged Claims. EX2001, ¶73. That is, the claim required three things, all of which are missing from Lindsey. *Id.*

Specifically, and as shown in the videos:

- Lindsey is not “configured to” direct fluid flow emitted from the outlet tangentially along and around the external surface of the substantially contiguous wall
- Lindsey does not create a circumferential fluid flow around the cylindrical second portion of the attachment
- Lindsey does not encourage hair to automatically wrap around the cylindrical second portion

EX2001, ¶74.

Instead, the Lindsey air flow takes **multiple** different paths including radial flow paths as illustrated in the photos below by the pencil inserted into a gap between vanes and into the vent 30 discussed above in connection with the annotated version of Fig. 11 in Section III.B. The result is an air flow that actually push hair away from the attachment. EX2001, ¶75 (citing EX2034; EX2035).



This is consistent with the actual teachings of Lindsey as discussed in the next section. *Id.* As such, Lindsey cannot and does not render limitations [1f] and [17f] obvious – even if it were combined with Saito. EX2001, ¶76.

3. Petitioners' Saito/Lindsey "Model" Is A False Representation Of The Saito/Lindsey Combination That Would Not Have Been Obvious

The Petition and Dr. Nosenchuk assert that it would have been obvious to a POSITA "to use an array of vanes, as taught by Lindsey, to comprise Saito's bristle base to provide the tangential air flow resulting from the turbinate arrangement of vanes." Petition at 22; EX1003, ¶88. However, the combination of Saito and Lindsey relied on by Petitioners and Dr. Nosenchuk involve far more than simply replacing Saito's bristle base with Lindsey's vanes. To support the obviousness challenge based on Saito and Lindsey, Petitioners and Dr. Nosenchuk conjured up a "model" of what the combination would look like to result in something that would satisfy limitations [1f] and [17f]. That "model" includes no less than *eight* additional changes, only two of which were acknowledged by Dr. Nosenchuk. EX2001, ¶77.

Dr. Nosenchuk's additional changes were not obvious because they are directly contrary to some of the express teachings in Saito and Lindsey, and modified the principle of operations of those devices. Instead, these changes were the product of hindsight, which is borne out because the result of these changes is a "model" that looks like the embodiment shown in Fig. 7b of the '979 patent rather than anything shown in Saito or Lindsey. Accordingly, Dr. Nosenchuk's model does not establish obviousness of limitations [1f] and [17f]. The "model,"

however, may in fact confirm the functionality of the '979 invention. EX2001, ¶78.

a. Petitioners' Saito/Lindsey "Model" Include Multiple Changes That are Not Found in Saito or Lindsey

The "model" and the accessories used to run the experiment performed by Dr. Nosenchuk to allege the obviousness of limitations [1f] and [17f] in view of the Saito/Lindsey combination is shown below:



Petition, p. 46. The Petition also refers to videos showing the operation of the "model" when used with a Shark FlexStyle blower and a sample of human hair. *Id.*, p. 47. Still images from these videos are shown below.

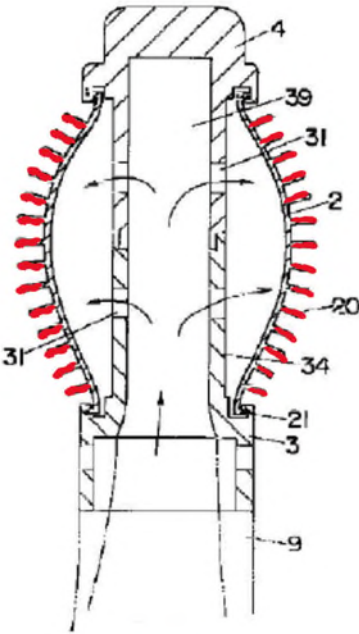
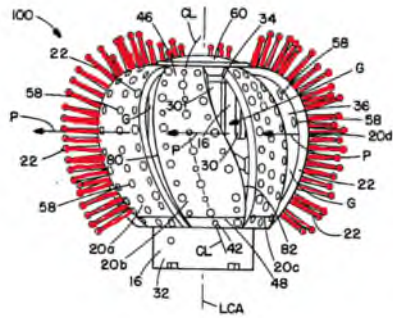


Petition, p. 47.

Dr. Nosenchuk's "model" is significantly different from what is taught in Saito and Lindsey. In fact, there are eight (8) differences in the model, including:

i. No Bristles

There are no bristles or prongs in the "model" despite the fact that both Saito (bristles 20) and Lindsey (prongs 22) explicitly teach, require and disclose them as part of their inventions. Saito's bristles 20 and Lindsey's prongs 22 are highlighted in red in the below table:

Saito (FIG. 1)	Lindsey (FIG. 11)	Petitioners' Model
(Figure 1)  1 Brush 2 Bristle base 9 Hair dryer 20 Bristle		

This is a significant alteration of the Saito/Lindsey combination as the presence of bristles/prongs would prevent the automatic wrapping of hair around the hair dryer attachment as discussed above. EX2001, ¶¶82-83. This omission was intentional because SharkNinja is fully aware that the commercial embodiment of the Lindsey patent, which includes prongs, does *not* “encourage[] hair to

automatically wrap around” the hair dryer’s attachment. *See* EX2013. A still image from that video is reproduced below:



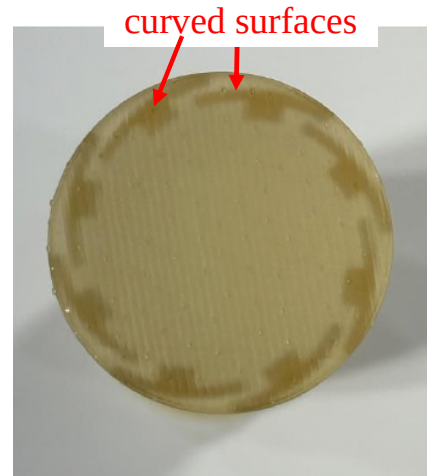
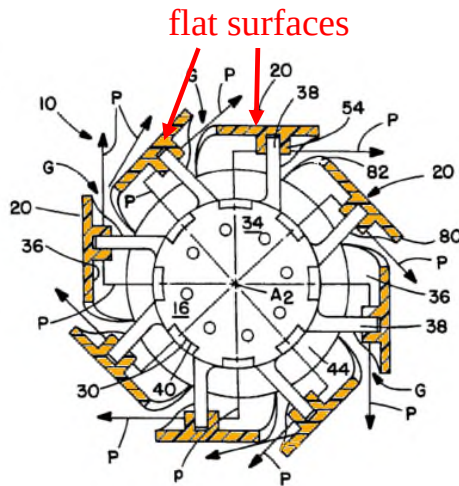
EX2013 at 0:00:34.

ii. Vanes Curved in the Latitudinal Direction

Dr. Nosenchuk acknowledged making “two minor modifications” to his “model.” EX1003, ¶133. The first of these acknowledged modifications was that the flat latitudinal cross-section of Lindsey’s vanes shown in Lindsey’s FIG. 9 were modified to “a slightly curved surface” as shown below.⁴ EX1003, ¶¶133-134.

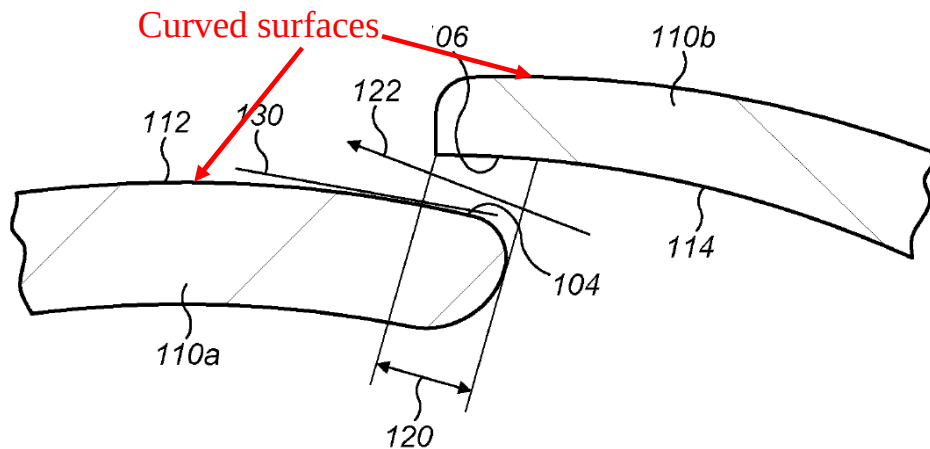
⁴ Dr. Nosenchuk describes this curved surface as a “longitudinally curved surface.” EX1003, ¶134. This is a misnomer. A longitudinally curved surface refers to a surface that is curved along the longitudinal axis of the device. A more accurate term for this curved surface is a latitudinally curved surface, which is used herein. EX2001, n. 5.

FIG. 9.



EX1001, FIG. 9; EX1003, ¶107 (“Model Distal End”); EX2001, ¶84.

This change is taken directly from FIG. 5b of the '979 patent, which similarly shows plates 110 with curved inner and outer surfaces 114, 112:

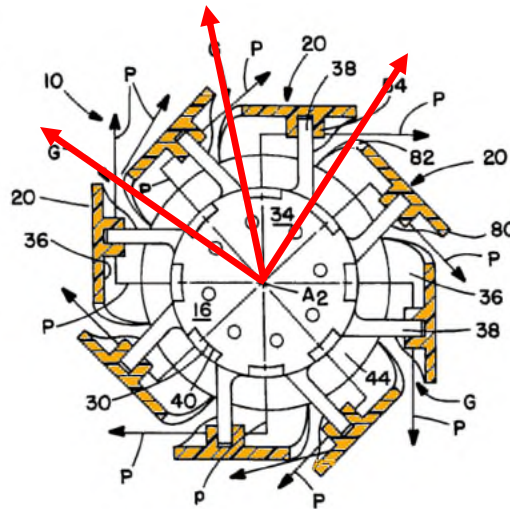


This too is a significant change because, as discussed above, the circumferential fluid flow required by limitations [1f] and [17f] is not possible without such curved surfaces. EX2001, ¶¶85-86.

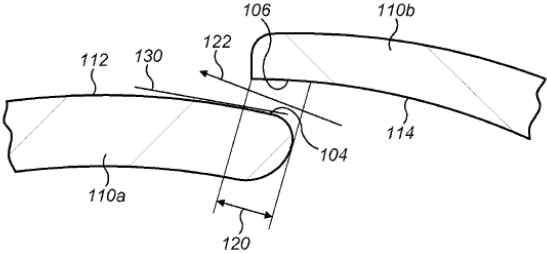
iii. Vanes Extended and Radial Gaps Between Vanes Eliminated

The second of Dr. Nosenchuk's acknowledged "two minor modifications" is that "the edges of the vanes were slightly extended in order to decrease the width of the gaps/slots formed between each vane." EX1003, ¶133. Contrary to Dr. Nosenchuk's description, this no "minor" modification because it completely ***eliminated*** the gaps that exist between Lindsey's vanes 20 in the radial direction. EX2001, ¶87. These gaps in the radial direction are indicated by the red arrows in the annotated version of FIG. 9 below. *Id.*

FIG. 9.



In contrast, Dr. Nosenchuk's model has no radial gaps. EX2001, ¶88.

'979 Patent (FIG. 5b)	Petitioners' Model
	

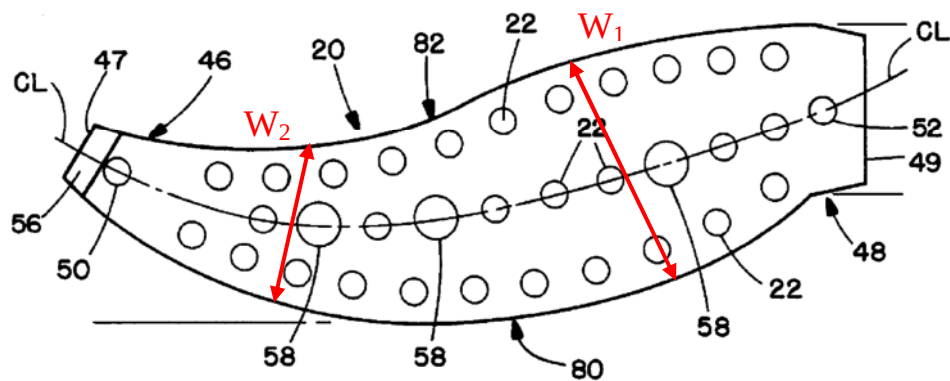
This change too was taken directly from FIG. 5b of the '979 patent, which similarly has overlapping plates 110 that leave no gaps in the radial direction. EX1001, FIG. 5b; EX1003, ¶107 (“Model Distal End”); EX2001, ¶89. This change was likely necessary in order for Dr. Nosenchuk to get his model to “work” to produce the circumferential fluid flow required by limitations [1f] and [17f] because those gaps produce a radially outward air flow that would disrupt any circumferential air flow that might form in their absence and instead form a turbulent air flow as disclosed in Lindsey. *Id.*

iv. Variable Width Vanes Made Constant Width

v. Variable Width Gaps Between Vanes Made Constant Width

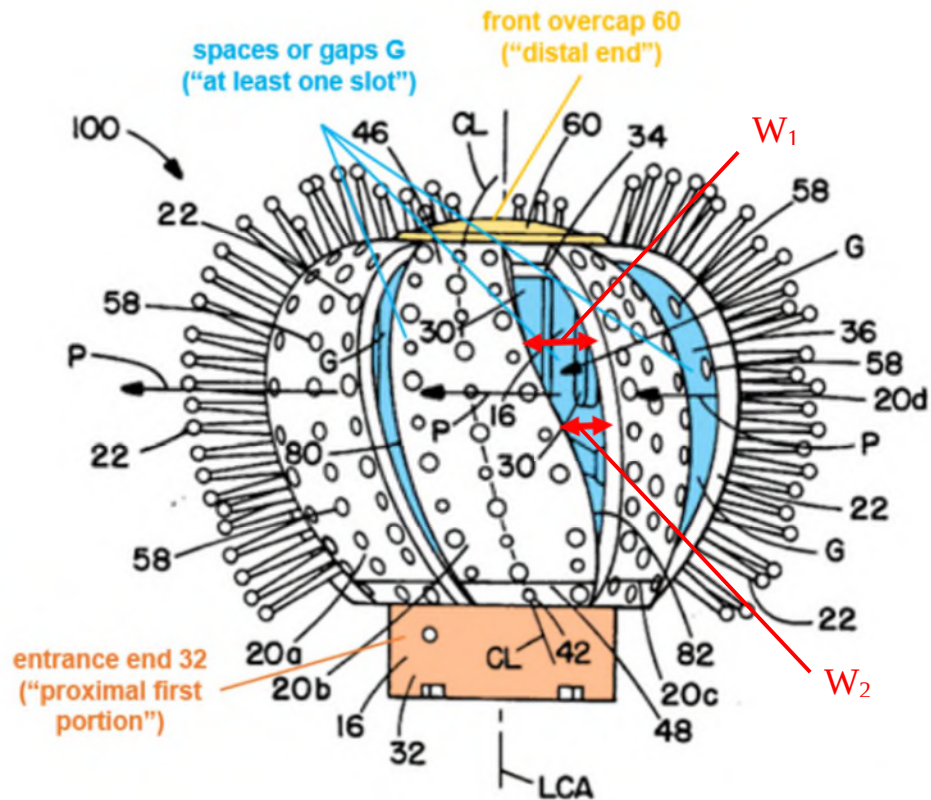
Although Dr. Nosenchuk did not acknowledge doing so, he made several other changes in his “model” combination of Saito/Lindsey. Two of these unacknowledged changes involve the width of Lindsey’s vanes 20 and the width of the gaps between those vanes. Lindsey discloses vanes 20 with variable widths such as W_1 and W_2 as shown in FIG. 5 below. EX2001, ¶90.

FIG. 5.

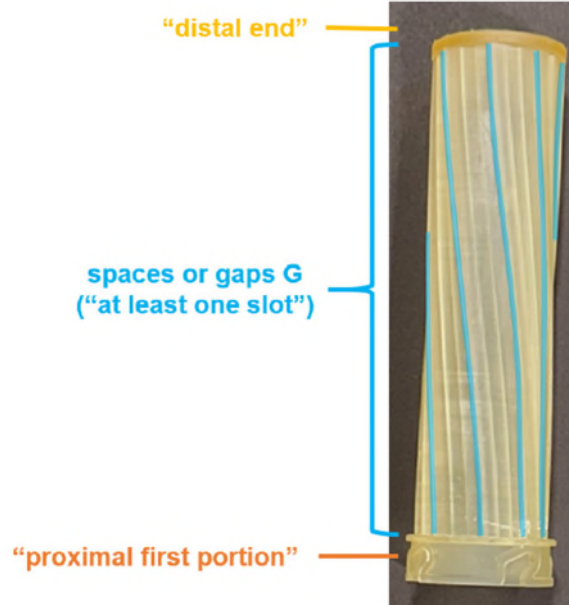


Lindsey’s variable width vanes 20 to form gaps having variable widths such as W_1 and W_2 as shown in FIG. 11:

FIG. 11.



EX2001, ¶91. In contrast to Lindsey’s variable width vanes 20 and variable width gaps between those vanes, Dr. Nosenchuk’s “model” has vanes of equal widths and gaps between vanes which are of equal widths (in addition to not being in the radial direction as discussed above). EX1003, ¶119; EX2001, ¶92.

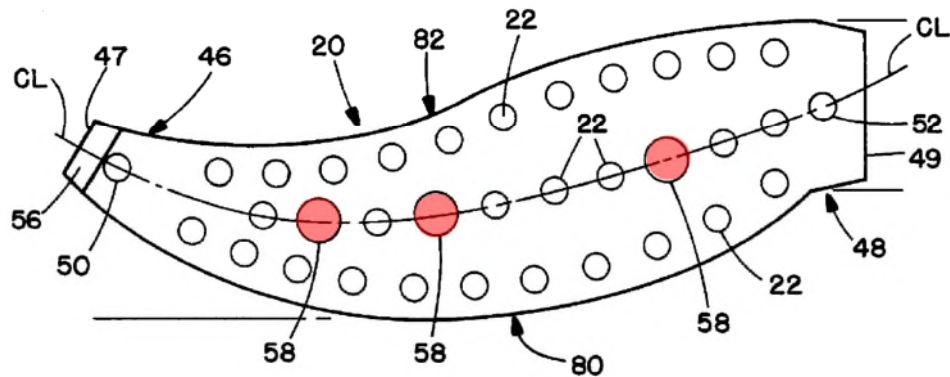


EX1003, ¶119. Dr. Nosenchuk offered no explanation or justification for these changes. In particular, Dr. Nosenchuk failed to explain why a POSITA would have made (or would have been motivated to make) these changes, or from where such motivation would have come. EX2001, ¶93.

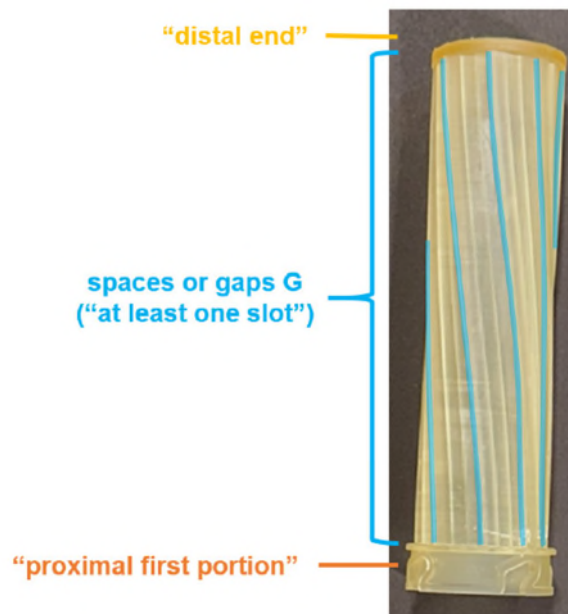
vi. Elimination of Holes in Vanes

There was yet another unacknowledged change made to Lindsey's vanes. Lindsey's vanes 20 each included multiple holes 58 as shown in FIG. 5. As discussed above, Lindsey explains that these holes 58 function to discharge air. EX1005, 6:54-56 and FIG. 5. These holes 58 together with the radial gaps between vanes function to provide a radial flow from Lindsey's attachment 10 as discussed above in the overview of Lindsey in Section III.B. EX2001, ¶94.

FIG. 5.



Dr. Nosenchuk's "model" eliminated Lindsey's air distribution holes 58 in the vanes 20:

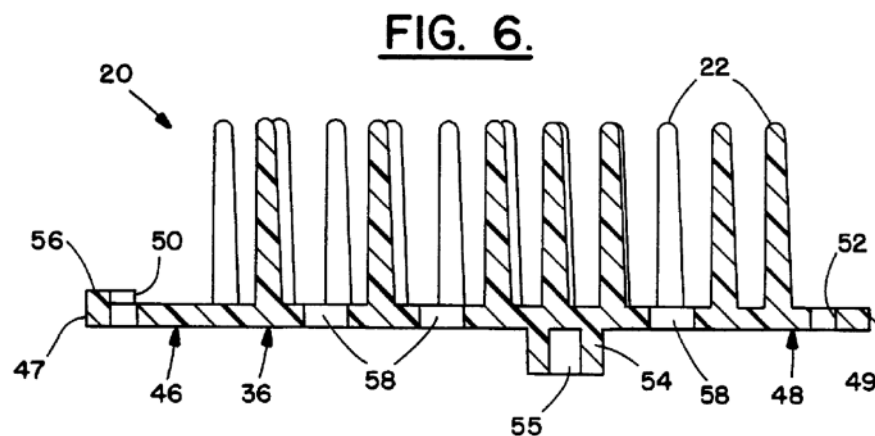


EX1003, ¶119; EX2001, ¶95. Dr. Nosenchuk again offered no explanation for this change. In particular, Dr. Nosenchuk failed to explain why a POSITA would have

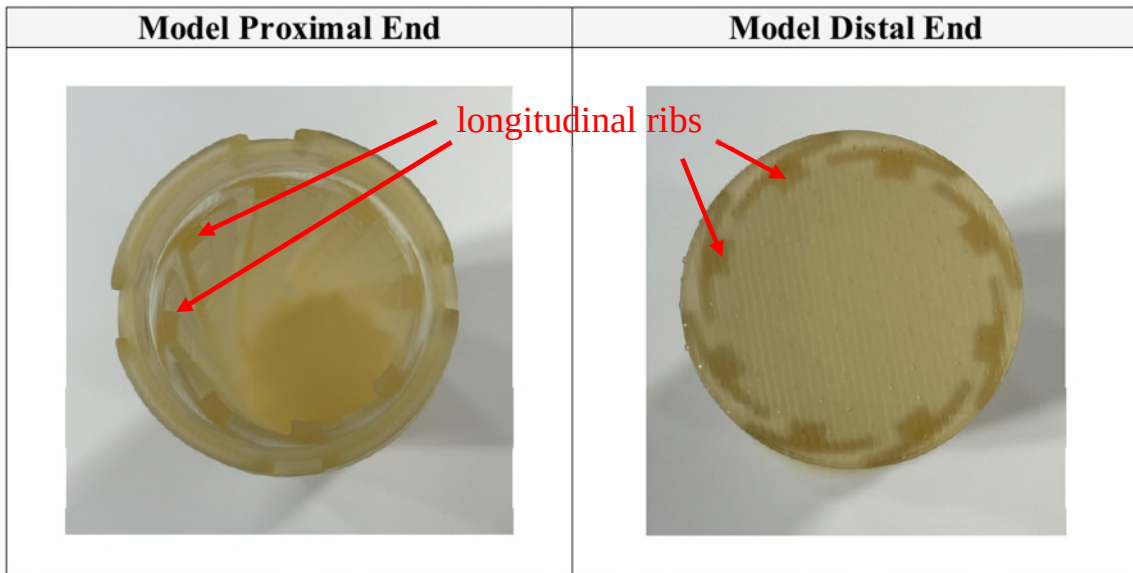
made (or would have been motivated to make) these changes, or from where such motivation would have come. EX2001, ¶96.

vii. Addition of Longitudinal Rib to Vanes

There was still another unacknowledged change made to Lindsey's vanes. The interior surface 36 Lindsey's vanes 20 is generally flat with the exception of a socket 55 as shown in Fig. 6 below,

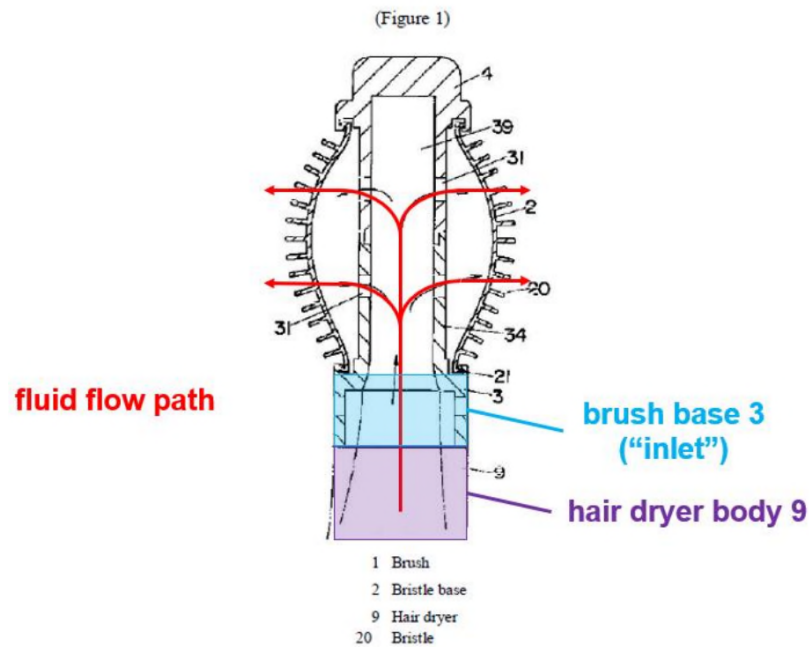


In contrast, the interior surface of the vanes in Dr. Nosenchuk's "model" includes a longitudinal rib as shown in annotated photos of "model". EX1003, ¶132, EX2001, ¶¶97-98. Dr. Nosenchuk again offered no explanation for the addition of this longitudinal rib.



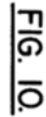
viii. Elimination of Central Distribution Plenum

Both Saito and Lindsey include a central air distribution plenum with a plurality of discharge openings. EX2001, ¶99. Saito discloses that hot air through a central tube 34 and is discharged via a plurality of opening 31 as shown in FIG. 1:

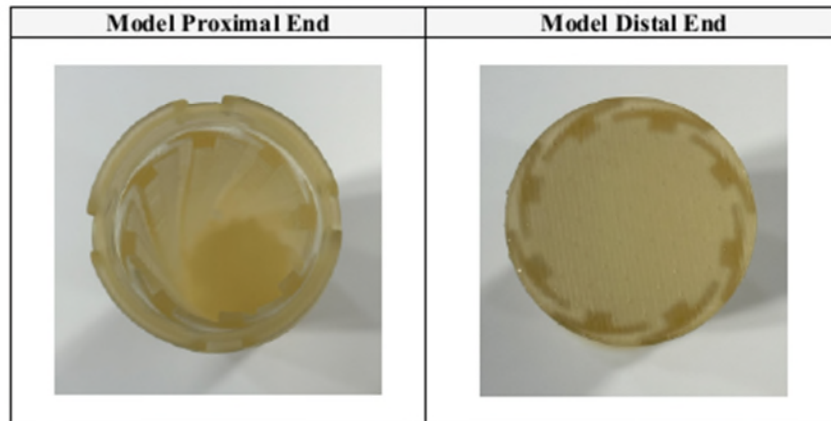


EX1004, ¶[0013] and FIG. 1; Petition at 36; EX2001, ¶99.

Lindsey similarly discloses that hot air flows from an outlet 14 to a sleeve 18 that is connected to a core 16 having discharge openings 28 and 30. The flow path “p” out of these discharge openings 28, 30 is substantially perpendicular to the central longitudinal axis as indicated by the red arrow annotations in FIG. 10.



EX1005, 5:18-20 and FIG. 10; EX2001, ¶100. As noted above in the overview of Lindsey in Section III.B, a significant portion of the discharge openings 30 are aligned with the radial gaps G to produce a radially outward air flow. In contrast, as admitted by Petitioners' litigation expert, there is no central distribution plenum in Dr. Nosenchuk's model. EX2001, ¶101. EX2077, 157:15-159:9.



EX1003, ¶117. Dr. Nosenchuk yet again offered no explanation for this change. In particular, Dr. Nosenchuk failed to explain why a POSITA would have made (or would have been motivated to make) this change, or from where such motivation would have come. EX2001, ¶102. Moreover, at no point does Dr. Nosenchuk indicate why his “model” is cylindrical where both Saito and Lindsey are designed to operate in a bulbous state. *Id.*; *see also* EX2077, 157:15-159:4 (Petitioners’ litigation expert admitting that the “model” has a “constant diameter, or roughly constant diameter” and would “buckle” “if you push on opposite ends” of the attachment to compress it).

b. The Petition Fails to Establish Motivation for the Multiple Changes to the Saito/Lindsey “Model”

When determining whether an invention would have been obvious to a POSITA, the Board must determine “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Arctic Cat Inc. v. Bombardier Rec. Prods.*, 876 F.3d 1350 (Fed. Cir. 2017) (quoting *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344 (Fed. Cir. 2017)). When a primary reference “teaches away” from the suggested modification, there is no motivation to combine. *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340 (Fed. Cir. 2000) (finding that a primary reference that teaches away from the suggested modification alone would defeat a claim of obviousness); *see also Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (a reference’s “statements regarding preferences are relevant to a finding regarding whether a skilled artisan would be motivated to combine that reference with another reference”).

The Petition and Dr. Nosenchuk fail to establish motivation for the eight changes made to their “model” of the Saito/Lindsey combination in order to achieve the circumferential fluid flow and automatic hair wrapping required by limitations [1f] and [17f], neither of which is disclosed in either Saito or Lindsey. First, while Dr. Nosenchuk alleged motivation for the two of his acknowledged

modifications, he provided no motivation for the six additional unacknowledged modifications as discussed above. EX2001, ¶105. The failure to identify any motivation for those changes alone is reason enough to deny institution here.

However, there are at least two additional separate and independent additional reasons why the Petition and Dr. Nosenchuk have failed to establish motivations for the eight modifications made to the Saito/Lindsey “model.” EX2001, ¶106.

First, the changes made to Saito and Lindsey change the principles of operation of both Saito and Lindsey. As discussed above, Saito’s device operates with a radially outward fluid flow, which is very different from the circumferential fluid flow required by limitations [1f] and [17f]. EX2001, ¶107.

Lindsey’s air flow is also substantially different from the circumferential fluid flow required by limitations [1f] and [17f]. Lindsey discloses that *some* of the air supplied to the core 16 that exits through the vents 28, 30 in a radial direction is deflected by the vanes 20 and discharged in tangential directions, while some other portions of that air are discharged directly through the gaps G and the vane holes 58 in radially outward directions. EX1005, 7:63-67 and 8:60-64; EX2001, ¶108. The result of these different air flow directions, and of the gaps of varying widths between vanes, is air that flows in multiple directions including

radial and tangential in “a turbulent manner.”⁵ EX1005, 9:47-57. As acknowledged by Dr. Nosenchuk (in EX1003, ¶92), air flowing in a “turbulent manner” provides “additional lift and volume to hair” and is one of Lindsey’s “main feature[s].” *See also* EX1005, 10:33-38. This benefit would be lost if Lindsey’s turbulent air flow were to be replaced by a circumferential flow that was smooth enough to entrain hair to cause it to automatically wrap. EX2001, ¶108.

In light of these teachings in Lindsey and the foregoing considerations, a POSITA would not have been motivated to modify Lindsey’s principle of operation to substitute the circumferential fluid flow required by limitations [1f] and [17f] for Lindsey’s multi-direction air flow in a “turbulent manner” that is one of its “main features.” EX2001, ¶109; MPEP §2143.01(VI).

Second, one of the two modifications that Petitioners and Dr. Nosenchuk do acknowledge making to the Saito/Lindsey “model” are directly contrary to the teachings of Lindsey. Dr. Nosenchuk modified Lindsey by extending the vanes “in order to decrease the width of the gaps/slots formed between each vane.” EX1003, ¶133. Decreasing the width of the gaps formed between Lindsey’s vanes 20 results in increased air speed through the gaps and may have been (likely was) necessary to achieve a circumferential flow in Dr. Nosenchuk’s “model.” EX2001, ¶110.

⁵ Although “turbulent” and “turbinate” appear to be similar words, they are two different concepts. EX2001, n.6.

However, decreasing the width of the gaps between Lindsey's vanes 20 also decreases the total volume of air through the "model." Decreasing the volume of the air flow through the model is directly contrary to Lindsey's teaching that these gaps are to provide a "large hot air exhaust area, approximately 40% wider than the open area that would be provided, for example, by a conventional hand-held, ball-type brush or comb device." EX1005, 9:42-47. One of Lindsey's objectives is to exhaust hot air rapidly and efficiently from the interior of the hair styler. EX1005, 9:36-38. Lindsey explains that this is important because the "operating temperatures of hot air hair blowers and hair styler attachments are close to the temperature limits of many non-metal materials which might be used in the hair styler" and "[i]f the air is not rapidly and efficiently exhausted, the excessive build up of pressurized air in the internal chamber could rapidly overheat and tend to melt or soften such materials." *Id.*, 9:61-67. Still further, "for hair stylers made of non-metal or metal materials, the excessive build-up of air pressure in the internal chamber would resist incoming air and the fan in the hair blower, and could rapidly overheat the hair blower." *Id.*, 10:1-4. These teachings in Lindsey directly contradict and teach away from modifying Lindsey to narrow the gaps between vanes as Dr. Nosenchuk did in his "model." EX2001, ¶111.

Dr. Nosenchuk provided no analysis of these issues concerning the temperature problems that Lindsey teaches could result by narrowing the gaps

between Lindsey's vanes. Moreover, Dr. Nosenchuck provides no information about the material used to create his "model" or whether that material can withstand the heat generated by a typical hair styler for any period of time while being flexible enough to allow reconfiguration between cylindrical and bulbous shapes as Dr. Nosenchuk describes in his declaration as the reason for combining of Saito and Lindsey. EX1003, ¶89. In any event, the failure of the Petition and Dr. Nosenchuk's to address any of these issues is the second additional, independent reason why motivation to make the eight modifications included into the "model" has not been shown. EX2001, ¶112. Indeed, the changes made to Saito and Lindsey to provide the functionality of Claims 1-17 were made from hindsight review of the '979 patent itself rather than obviousness and should be considered in that light. EX2001, ¶113

4. No Claim Limitation is Inherent

In arguing that limitation [1f] and therefore [17f] are disclosed, Petitioners argue that "the Examiner correctly (and repeatedly) indicated, where a prior art apparatus is identical or substantially identical in structure, claimed properties or functional characteristics are presume to be inherent." Petition, pp. 47-48. Petition, 57. Petitioners conclude that "[b]ecause the modified Saito configuration using Lindsey's vanes has all of the structural features of the claims, the function of that structure to cause circumferential airflow to encourage hair to automatically wrap

around the cylindrical portion of the attachment would have also been inherently present in that structure described in the claims.” Petition, pp. 47-48. Petitioners make similar statements for claims 1-16 (during prosecution), Petition, p. 16, and claim 3 (for Ground 1) and 19 (Ground 4).

Petitioners’ support for these inherency arguments is the holding from *In re Best*. Petition, 47. But as Petitioners note, *In re Best* only applies when the prior art apparatus “is identical or substantially identical in structure” to the Challenged Claims’ structure. But as shown above, the combination of Saito with Lindsey would result in an attachment with manifest and significant differences including but not limited to bristles or prongs, varying width gaps between vanes, and radial and tangential flow paths, while the Challenged Claims do not have this structure. As such, *In re Best* is inapplicable as the prior art attachment is not identical or substantially identical in structure to the Challenged Claims’ attachment. Thus, Petitioners inherency arguments are incorrect. EX2001, ¶¶114-115.

B. Secondary Considerations Weigh in Favor of Non-Obviousness of the Challenged Claims

Objective indicia of non-obviousness (also referred to as secondary considerations) may include long-felt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, industry praise, and expert skepticism. *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1379 (Fed. Cir.

2012). Objective indicia are “only relevant to the obviousness inquiry ‘if there is a nexus between the claimed invention and the [objective indicia of nonobviousness].’” *In re Affinity Labs of Tex., LLC*, 856 F.3d 883, 901 (Fed. Cir. 2017); *see also ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). As the Federal Circuit explained, “a patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product ‘is the invention disclosed and claimed.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019), cert. denied, 141 S. Ct. 373 (2020) (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988)). That is, presuming nexus is appropriate “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Id.* (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)).

The Board uses a two-step analysis in evaluating nexus between the claimed invention and the evidence of secondary considerations. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 33 (PTAB Jan. 24, 2020) (precedential). In the first step, the Board considers whether the patent owner has demonstrated “that its products are coextensive (or nearly coextensive) with the

challenged claims,” resulting in a rebuttable presumption of nexus. *Id.* If not, that “does not end the inquiry into secondary considerations”; “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Id.* (quoting *Fox Factory*, 944 F.3d at 1373–75).

Fox Factory Step 1

In the present case, PO and its expert can establish that PO’s commercial Airwrap product (including models HS01 and HS05) is “coextensive (or nearly coextensive)” with the Challenged Claims and that Petitioners were well aware of this and PO’s evidence from current and prior litigations throughout the world. Moreover, Petitioners’ FlexStyle Auto-Wrap Curler (hereinafter the “FlexStyle”) is also “coextensive (or nearly coextensive)” with the Challenged Claims; Petitioners were well aware of this too. As shown in EX2002-EX2007, PO’s Airwrap reads on and practice each and every limitation of Challenged Claims 1-3, 14-15, 17-19, and 30-31, and Petitioners’ FlexStyle reads on and practice each and every limitation of Challenged Claims 1-3, 5, 8, 9, 12-15, 17-19, 21, 24, 25, 27 and 29-31, and in fact are “essentially the claimed invention” as required by *Fox Factory*. EX2001, ¶118. That is, they contain, among other things, the attachment recited in claims 1-3 and 14-15 (airwrap) and 1-3, 5, 8, 9, 12-15 (FlexStyle) and the handheld appliance and attachment of claims 17-19 and 30-31 (airwrap) and 17-19, 21, 24, 25, 27 and 29-31

(FlexStyle). *Id.* A significant feature of the Challenged Claims is present in both the Airwrap and FlexStyle -- an outlet “configured to direct fluid flow emitted from the outlet tangentially along and around the external surface of the substantially contiguous wall to form a circumferential fluid flow around the cylindrical second portion of the attachment that encourages hair to automatically wrap around the cylindrical second portion.” EX2001, ¶119. All other features of Challenged Claims 1-3, 14-15, 17-19, and 30-31 are present in the Airwrap and all other features of Challenged Claims 1-3, 5, 8, 9, 12-15, 17-19, 21, 24, 25, 27 and 29-31 are present in the FlexStyle. *Id.* Additionally, there are no critical, unclaimed features in either the Airwrap or FlexStyle. As such, PO is entitled to the rebuttable presumption of nexus between the following secondary consideration evidence, based on PO’s Airwrap and Petitioners’ FlexStyle, and the Challenged Claims. EX2001, ¶¶119-120.

Despite having knowledge of the secondary consideration evidence identified below, Petitioners assert that “[t]here are no secondary considerations of non-obviousness tied to the Challenged Claims.” Petition, p. 89. Petitioners have simply ignored and hidden this well-known evidence from the Board and from their own expert, Dr. Nosenchuk, who has testified repeatedly that he is unaware of any secondary consideration evidence brought forward by Dyson. *See, e.g.*, EX1003, ¶253:

- “I am not aware of any secondary considerations of non-obviousness raised by Dyson with respect to the Challenged Claims of the '979 patent.”
- “I am not aware of any showing of a long-felt but unmet need satisfied by the '979 patent.”
- “I likewise am not aware of any evidence relating to the other ‘secondary’ or ‘objective’ considerations listed above.”

Regarding commercial success, Dr. Nosenchuck admits to being aware that the “AirWrap has had some degree of commercial success,” but inexplicably chose to ignore it:

- “I am not aware of any commercial success of any styling brush that is due to their practicing of the Challenged Claims of the '979 patent. Although it appears to me that the Dyson AirWrap has had some degree of commercial success, *I have not quantified that success, nor have I performed an element-by-element analysis of the claims of the '979 patent against the Dyson AirWrap product* such that I could conclude that any commercial success is due to the practicing of the Challenged Claims by the Dyson AirWrap.” (emphasis added).

Dr. Nosenchuk chose not to evaluate this evidence of commercial success known to him despite having been informed that objective evidence of non-

obviousness including commercial success is one of the four factors included in the framework for evaluating obviousness. EX1003, ¶24-25. Because Petitioners and their expert have turned a blind eye to PO's prior secondary considerations arguments and evidence, Petitioners should not now be allowed to rebut PO's presumption of nexus. *Omron Oilfield & Marine, Inc. v. MD/Totco*, IPR2013-00265, Paper 14, at 2 (P.T.A.B. Feb. 13, 2014) (denying rehearing in part because Petitioner failed to address evidence of secondary considerations that it was aware of from a prior proceeding).

Fox Factory Step 2

Should Petitioners belatedly attempt to rebut the above established presumption of nexus, PO also establishes why finding nexus is appropriate under step 2 of the *Fox Factory* test –i.e., the evidence of secondary considerations is the “direct result of the unique characteristics of the claimed invention.” *Fox Factory*, 944 F.3d at 1373–74; *see also Ontel Prods. Corp. v. Guy A. Shaked Invs. Ltd.*, IPR2021-00052, Paper 38 at 37-39 (PTAB Apr. 18, 2022) (patent owner demonstrated a nexus between its DAFNI brush and the claimed invention “by showing the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention”).

PO submits that a unique characteristic of the Challenged Claims is the attachment's outlet “configured to direct fluid flow emitted from the outlet

tangentially along and around the external surface of the substantially contiguous wall to form a circumferential fluid flow around the cylindrical second portion of the attachment that encourages hair to automatically wrap around the cylindrical second portion.” EX2001, ¶125. This configuration produces the Coanda effect, which encourages the automatic hair wrapping recited in the claims. *Id.* Benefits of this airflow include reducing heat damage and mechanical damage to the user’s hair, allowing hair to be dried and curled at the same time, and allowing one hand operation of the device. *Id.*; *see also* EX2011, 50:23-51:14. The evidence discussed below documents that these benefits are attributable to the Airwrap and FlexStyle’s generation and use of the Coanda effect to generate a circumferential fluid flow that encourages automatic hair wrapping. EX2001, ¶125.

1. Commercial Success

The following evidence establishes that the Airwrap and FlexStyle have both been commercially successful and that their success is tied to limitations [1f] and [17f] of the Challenged Claims. For starters, ***Petitioners’*** Senior Vice President, Anthony Marra, has testified and admitted that PO’s Airwrap has been commercially successful and praised by the industry:

20 Q. Do you agree that the Dyson Airwrap
21 was a commercial success?
22 ATTORNEY BUROKER: Objection.
23 Foundation and outside the scope.
24 A. I do believe the Airwrap has been

93

1 successful.

2 Q. Did the Dyson Airwrap receive the
3 same kind of industry praise when it was
4 introduced?

5 ATTORNEY BUROKER: Objection.
6 Outside the scope and vague.

7 A. I believe it has received praise.

4 Q. And that is also true of the Dyson
5 Airwrap. When the Dyson Airwrap was
6 introduced, it also went viral, using your
7 definition. Right?

8 A. I don't recall exactly at the time
9 when it launched, but it could have.

10 Q. You don't have any reason to think
11 that it didn't, do you?

12 A. I have no reason to think that it
13 didn't.

14 Q. Did the Dyson Airwrap, to your
15 knowledge, receive any praise from others?

16 ATTORNEY BUROKER: Objection.
17 Outside the scope and foundation.

18 A. You are asking about the Airwrap?
19 BY ATTORNEY STEADMAN:

20 Q. Yes.

21 A. Did it receive praise?

22 Q. Yes.

23 A. Yes, it has received praise.

EX2011, 92:20-93:1; 106:2-7; 107:4-23.

Further evidence of the commercial success of PO's Airwrap is that it "***sold out almost immediately***," EX2014, "and within a few weeks, had a waitlist of more than 130,000 people." EX2015. Three years after its release, "the Airwrap had over 100,000 people still waiting for their chance to buy one and four sold every minute." EX2015.

Robert Tweedie, PO's Design Manager, stated that PO's Airwrap "was a game changer." EX2010, p. 247. He explained that the industry praise came "down to the technology which we've laid claim to in this Patent." *Id.*, p. 247.

The commercial success of PO's Airwrap is also shown in part by its widespread acclaim and numerous industry accolades, some of which are listed below and in the "Industry Praise" section discussed below:

- The Airwrap was recognized as an "innovator" by Elle Magazine, from which it won a Future of Beauty Award in in 2019 and 2022. EX2016, DYSON_0130774; EX2017, DYSON_0129937.
- The Airwrap was named one of Time Magazine's Best Inventions of 2019. EX2018, DYSON_0130828.
- The Airwrap was also recognized as one of the Greatest Innovations of 2019 by Popular Science Magazine. EX2019, DYSON_0130858-860.

Petitioners have already admitted that their FlexStyle has been commercially successful in a United Kingdom proceeding involving a foreign counterpart patent to the '979 patent:

- “[t]he existence and success of Defendant’s [FlexStyle] Products is admitted.” EX2020, 3(g)(i).
- Shark “does not dispute that the Dyson Airwrap or SharkNinja FlexStyle were commercially successful products.” EX2021.

The success of the Airwrap and FlexStyle is attributable to their use of the technology of limitations [1f] and [17f] of the Challenged Claims (i.e., its ability to direct fluid flow emitted from the outlet tangentially along and around the external surface of the substantially contiguous wall to form a circumferential fluid flow around the cylindrical second portion of the attachment that encourages hair to automatically wrap around the cylindrical second portion”, as a result of its use of the Coanda effect). EX2001, ¶¶126-131. As a result, both products achieve and advertise creating curls and waves without heat damage to the hair:

- *Bustle* reported the Airwrap uses “innovative technology” and that “Dyson engineers focused on using the Coanda effect for the Airwrap.” EX2022. The article stated that “[t]o style hair with air instead of excessive heat, Dyson’s experts designed a barrel that would encourage the Coanda effect to occur.” *Id.*

- *Women Love Tech* stated the Airwrap “is only made possible because of a physical phenomenon known as the Coanda effect...The sheer ingenuity of the way in which it works is beyond fabulous.” EX2023. The article also reported that by “[t]aking advantage of this [Coanda effect] Dyson’s team of aerodynamicists create a way to style hair using only air combined with heat.” *Id.*
- A 2019 *Cosmopolitan Hair Awards* article stated that the “ventilated wand uses the force of air to wrap hair around the barrel before heating it,” where the result was indicated to be the “perfect non-fried curl.” EX2024, DYSON_0130114.
- *Allure* said its “obsession with the Airwrap” stems from the use of the Coanda effect and that the “air from the tool sucks your hair to spiral around the barrel, creating curls without having to use a ton of heat.” EX2025, DYSON_0037354.
- *Mashable* stated that the Airwrap enables hair to be styled “without damaging extreme heat” and that its “eight attachments” are “what sets this pricey hair appliance apart from its competitors – the promise of preserved hair health while still creating the bouncy curl or sleek style of your dreams. It’s all thanks to something called the Coanda effect.” EX2026. The review concluded that “on the cost effectiveness

scale” the Airwrap was “five out of five” and “worth it.” *Id.*, at about 18 min and 18 seconds.

- *Vogue Arabia* stated that the Airwrap’s “revolutionary design built on the Coanda effect — a specific form of airflow that goes around the barrel to style hair without damage — it allows users to curl, smooth, and dry hair simultaneously, saving precious minutes in your daily routine — and lots of space in your suitcase.” EX2027.
- promotional materials for the Airwrap emphasize the “coanda to curl” technology and describe it as a “continuous flow of air forms around the barrel, attracting hair to its surface, creating voluminous curls and waves without extreme heat.” EX2069.
- Petitioners’ promotional materials also emphasize that the technology enables drying and styling hair at the same time: “Uses air power to automatically wrap hair around the barrel, from ends to roots” to “Style & dry at the same time.” EX2036, p. 3.
- FlexStyle packaging touts “Style while you dry with no heat damage,” as well as the “Coanda Technology” which “Wraps. Curls. Sets. Automatically.” EX2028; EX2029.
- FlexStyle packaging also highlights how easy the technology makes styling hair: “Watch the magic happen when you place hair near the

curlers. Automatic wrapping, setting, and curling, for easy, luscious looks” and “Hassle-free curls in seconds.” EX2029.

As can be seen, FlexStyle’s own promotion and packaging highlights the use of the Coanda effect. Moreover, independent, third-party sources have highlighted the Airwrap and FlexStyle’s use of the Coanda effect. For example:

- *CNN* reviewed the Airwrap and FlexStyle and reported that the “Coanda effect curlers are what make these hair tools magic,” and recognized that both products’ curlers “feature this technology.” EX2037.
- *Marie Claire* reported the FlexStyle is “Shark’s answer to a traditional curling iron, but with a high-tech upgrade” and that they use “Coanda technology...What this means: Strands easily wrap around the barrel, creating bouncy curls.” EX2038.

Thus, there is a clear nexus between the commercial success of the Airwrap and its use of the technology covered by the Challenged Claims. EX2001, ¶¶126-133. Likewise, there is also a clear nexus between the commercial success of the FlexStyle and its use of the technology covered by the covered by limitations [1f] and [17f] of the Challenged Claims. *Id.*

2. Industry Praise

As discussed above, PO's Airwrap and Petitioners' FlexStyle are commercially successful and received extensive, viral industry praise for technology related to the Challenged Claims (not repeated in this section). PO submits the following evidence of additional praise received by PO's Airwrap, which are also tied to limitations [1f] and [17f] of the Challenged Claims:

- The Airwrap received Allure's Best of Beauty Award in 2020, 2021, and 2022. EX2039, DYSON_0037253; EX2040.
- The Airwrap won Allure's Best of Beauty Splurges in 2021. EX2041, DYSON_0037269.
- The Airwrap was awarded the Allure Best of Beauty Luxury & Splurges in 2023. EX2042, DYSON_0037600.
- The Airwrap won a Cosmopolitan Hair Award in 2019. EX2043, DYSON_0130114.
- The Airwrap won a Cosmopolitan Summer Beauty Award in 2022. EX2044, DYSON_0130056.
- The Airwrap won a Power Your Pretty Award from POPSUGAR Beauty in 2019. EX2045, DYSON_0129697-698.
- The Airwrap won a Good Housekeeping Beauty Award in 2019. EX2046, DYSON_0129918.

Patent Owner's Preliminary Response
IPR2024-00993

- The Airwrap won a Women's Health Beauty Award in 2019. EX2047, DYSON_0129958.
- The Airwrap won a Women's Health 2021 Healthy Hair Award. EX2048, DYSON_0130275.
- The Airwrap was included in the Glamour Beauty Power List in 2020. EX2049, DYSON_0037511.
- The Airwrap won an Esquire Gadget Award in 2020. EX2050, DYSON_0130144.
- The Gloss Angeles Beauty Awards recognized the Airwrap, three differently sized Airwrap Barrels, and the Airwrap Small Volumizing Brush in 2021. EX2051, DYSON_0130732-733.
- The Airwrap won a Harper's Bazaar Best of Beauty Award in 2022 and a Harper's Bazaar Hair Award in 2022 and 2023. EX2052, DYSON_0129989; EX2053, DYSON_0129844-845; EX2054, DYSON_0129815-816.
- The Airwrap was recognized as a Hair Care Winner by Elle's Beauty Awards In 2022. EX2055.
- The Airwrap won a BeauLife Beauty Award in 2022. EX2056, DYSON_0130025.

Patent Owner's Preliminary Response
IPR2024-00993

- The Airwrap won a Tatler Magazine Beauty Award in 2022. EX2057, DYSON_0130454.
- The Airwrap was included in Self Magazine's Best Hair Styling Products and Tools of 2022. EX2058, DYSON_0130609-610.
- The Airwrap won a Best in Black Beauty Awards from Essence Magazine in 2023. EX2059, DYSON_0130326.
- The Airwrap won a Best Beauty Tool & Device Award from Beauty Insider in 2023. EX2060, DYSON_0129945.
- The Dyson Airwrap won a Stylist Best Beauty Award in 2023. EX2061, DYSON_0129660-661.
- The Airwrap won a Best in Beauty Award from Cosmetic Executive Women in 2023. EX2062, DYSON_0129714.
- The Airwrap won a Bustle Most Wanted Holiday Award in 2023. EX2063, DYSON_0129785-786.
- The Airwrap won a Newbeauty Beauty Award in 2023. EX2064, DYSON_0129803.
- The Airwrap won an Innovation Excellence Award from Canstar Blue in 2023. EX2065, DYSON_0130015.

- The Airwrap was recognized as one of the top 4 beauty devices of 2023 by HerWorld magazine. EX2066, DYSON_0129828-830.

Reading the reasons for these awards, a POSITA would have understood that they are tied to the Airwrap's generation and use of the Coanda effect to automatically wrap hair as recited in limitations [1f] and [17f]. EX2001, ¶¶134-135. For example, the Cosmo Hair award states that "the perfect non-fried curl" is obtained because of Airwrap "uses the force of air to wrap hair around the barrel before heating it." EX2043, DYSON_0130114. Popsugar stated that the Dyson Airwrap was a "revolutionary invention" and a "game changer" because it's "technology, which the brand calls the Coanda effect, allows users to both style and dry their hair in one step without heat damage." EX2045, DYSON_0129697-698. Glamour stated the Airwrap's "engineering feat is the Coanda effect, [which] uses a super speed air stream to whip hair round the barrel and create every type of curl..." EX2049, DYSON_0037511.

This establishes a nexus between the industry praise of the Airwrap and its use of the technology covered by limitations [1f] and [17f] of the Challenged Claims. EX2001, ¶¶134-136.

3. Copying

Other companies have recognized the success of PO's Airwrap and Petitioners' FlexStyle and have launched products that advertise the use of the

Coanda effect to automatically wrap hair around a barrel to curl the hair. For example, the Sharper Image Revel Hair 6-in-1 Multi-Styler claims to use the Coanda effect and is sold with two 1.25" "Airflow Curlers." See EX2067.

A POSITA would have understood that the above identified products copied the Challenged Claims' structure and method of generation and use of the Coanda effect, meaning that there is a nexus between the copying by others and the technology covered by the Challenged Claims. EX2001, ¶¶137-138.

4. Long-felt, but unmet need (Failure of Others)

Consumers had options for at-home curling and styling tools before the introduction of PO's Airwrap, but as shown below, and further explained by Amy Johnson, PO's Global Head of Education for the Beauty Division, each had distinct limitations and disadvantages, including risk of injury to the user, which were not addressed until PO's Airwrap was introduced into the market.

"Typical hot tools' for hair styling include any tool that gets hot." EX2068, ¶26. Some of these tools "work at extreme temperatures" that "creates an increased risk of burning the hair or skin" and increases the risk of injury to the user. *Id.*

"Tongs and curling irons, for example, use high heat to style and curl hair." *Id.*, ¶27. The "use of high heat directly on human hair can damage or even burn the hair. Hot appliances can also burn skin on hands, neck, face, ears, or scalp." *Id.*

Additionally, a “typical curling iron’s clip also makes it hard to slip the styled hair off the end of the device without unwinding the hair, which can lead to limitations on the type or shape of the style and curl.” *Id.*

“Other typical ‘wet to hot’ tools just blow air out in any direction; and they can still get very hot. Because the air is not controlled or aligned with the hair, the user gets more frizz, and may have difficulty in getting the right style.” *Id.*, ¶28.

“There are many kinds of hot air brushes that fall into this category,” all of which “rely on bristles to hold and curl hair.” *Id.*, ¶29. “Bristles can break or damage hair by pulling” and “also make it hard or impossible to slip the styled hair off the end of the device without unwinding the hair, which can lead to limitations on the type or shape of the style and curl.” *Id.* Most these hot air brushes “also rely on high heat, having the same disadvantages of heat damage to hair as mentioned above.” *Id.* “These devices also require the user to rotate the brush, which can be hard on the wrist and difficult to achieve.” *Id.*

Using a hair dryer and brush to style or curl hair “has the same disadvantages as hot air brushes.” *Id.*, ¶30. “In addition, it can be difficult for the user to hold and manipulate both a brush and a hair dryer, particularly behind the head.” *Id.*

“[M]otorized brushes and devices have been introduced over the years” and “rely on a mechanism to rotate the brush head.” *Id.*, ¶31. However, “these devices

have the disadvantage that the rotating part can get caught on the user's hair, tangling the hair or even tangling into the hair, causing pain and damage" to the hair. *Id.*

The tools discussed in the foregoing paragraphs, available before the PO's Airwrap and its use of the Coanda effect, failed to meet consumers' needs in the marketplace. *Id.*, ¶33. "Users had long experienced an unmet need for a styler and curler that could be used by the user at home, outside of a salon, without bristles, without any kind of rotating mechanism, without high heat that would style and curl hair effectively and without damage from bristles and high heat. These needs had persisted for decades" as many "other manufacturers had tried and failed to meet these needs." *Id.*, ¶¶33-34.

PO met consumers' needs with the release of the Airwrap, a commercial embodiment of the '979 patent claims as shown in EX2002-EX2005; EX2068, ¶¶40-45. Specifically, PO's Airwrap products "are a unique combination of benefits to the user: less heat damage, no bristles, automatic wrapping, slide-off styling all the way to the top of the hair, and no mechanical damage—all in one package." EX2068, ¶45. As such, there is a nexus between the solution to the long felt, unmet needs in the industry, and the technology covered by the Challenged Claims. EX2001, ¶¶139-146.

5. Unexpected results

Robert Tweedie, PO's Design Manager, testified that "it was known to the outside world that we'd invested time, effort and money in developing an automatically wrapping device for wrapping hair." EX2010, p. 244. A few years before the Airwrap launched, however, even PO's employees were skeptical that the Airwrap would be a success. *Id.*, 16-18. Mr. Tweedie testified that PO "was doing something unexpected, because it was a very different concept of the existing competitors we had to explain ... how it was working." *Id.*, 16

Mr. Tweedie, testified that "there was a lot of development from the first initial working device." EX2010, p. 96. PO had to "work in a way which would provide that unmet need, the sort of unexpected offering which we created for the consumer, which at that moment in time, those devices weren't providing." *Id.* When considering just the Airwrap curling attachments, Mr. Tweedie stated that to develop a final commercially- successful and manufacturable product, PO had to consider different hair types, different levels of moisture content in hair, the amount of hair, the type of motor which impacts flow and pressure, the heater element, restrictions of all the other components in the device, and tapered or not tapered barrels. *Id.*, pp. 95-96, 103.

PO did not anticipate the Airwrap's viral success in the marketplace. EX2068, ¶¶49-50. "Consumers and stylists were taken by surprise at the ease of

use,” among other benefits, of the Airwrap, and how it “could dry, style and curl hair without the use of bristles or high heat, could minimize heat damage, and could make styling faster, easier and more convenient.” *Id.* The benefits of the claims of the '979 patent provided these unexpected results. EX2001, ¶¶147-149.

A POSITA would have understood that the unexpected results were achieved by the Airwrap's creation and use of the Coanda effect, meaning that there is a nexus between the unexpected results and the technology covered by the Challenged Claims. EX2001, ¶150.

6. Initial skepticism by experts

“At first, stylists and other experts in the market (as well as consumers) were skeptical of Airwrap's Coanda curlers.” EX2068, ¶49. Many required education on how they worked, and how to effectively use them, as it was a novel approach. *Id.* Ms. Johnson explains that prior to actual use, “[i]t was difficult for stylists and customers to understand how Airwrap Coanda curlers could dry, style and curl hair without the use of bristles or high heat, could minimize heat damage, and could make styling faster, easier and more convenient.” *Id.*

This skepticism is directly related to the Airwrap's creation and use of the Coanda effect, meaning that there is a nexus between the skepticism and the technology covered by the Challenged Claims. EX2001, ¶¶151-152.

VII. DISCRETIONARY DENIAL UNDER § 325(D) IS APPROPRIATE

Discretionary denial under 325(d) is appropriate. As Petitioners conceded several times, the “claims were rejected *repeatedly over the Lindsay (sp.) reference* during the original protracted seven-rejection, eight-amendment prosecution history” and that the “*applicant avoided Lindsay (sp.) only by requiring that the claimed attachment is in part cylindrical.*” Petition, pp. 1, 2 (“the cylindrical shape was the only successful basis the patentee had to distinguish over Lindsay”), 5 (“rejections were finally overcome only when the applicant added the ‘cylindrical’ requirement to the claims”), 16-17 “Applicant then amended the claims to recite the ‘cylindrical’ structure of the attachment to overcome Lindsay (sp.)”).

What Petitioners fail to mention is that in subsequent Office Actions, with full knowledge of Lindsey, the Patent Examiner cited to McDougall, Glassman and Speetjens as each showing cylindrical attachments. *See, e.g.*, EX1002, Dec. 14, 2018 Office Action at 4-5; April 15, 2020 Office Action at 3; Sept. 18, 2019 Office Action at 6. While Saito in view of Lindsey was not considered by the Examiner, Lindsey and several other cylindrical attachment references were during the “original protracted” prosecution of the ’979 patent.

Petitioners’ deceptive “model” of the Lindsay-Saito combination, including as it does unacknowledged changes to both Lindsay and Saito to construct a working hindsight-motivated reconstruction of the ’979 patent embodiment, should

weigh heavily against institution – Petitioners knew that the Lindsay-Saito combination would not work without extensive changes, but hid the evidence of these changes from the Board.

Moreover, Petitioners blatant misrepresentation that “[t]here are no secondary considerations of non-obviousness tied to the Challenged Claims,” Petition, p. 89 (emphasis added), should also weigh heavily against institution – Petitioners knew about the evidence and did not factor it into its or its expert’s analysis. Worse, it intentionally hid the evidence from the Board and its own expert.

Discretionary denial is therefore appropriate.

VIII. CONCLUSION

For each of the foregoing reasons, the Petition should be denied as to the requested grounds.

Patent Owner's Preliminary Response
IPR2024-00993

Dated: September 13, 2024

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CERTIFICATE OF COMPLIANCE

I, James M. Heintz, certify that this paper complies with the type-volume limitation of 37 C.F.R. § 42.24 because it contains 12,248 words, excluding the parts of the paper exempted by 37 C.F.R. § 42.24(a).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Patent Owner's Preliminary Response has been served via electronic mail upon the following:

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